INSERVICE TESTING OF VALVES PROGRAM

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9112000417

SDMS No. _____ (If Applicable)

REFERENCE SO123-VI-1.0.1

TEMPORARY CHANGE NOTICE

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FOR CDM USE ONLY: QA? Y or N

Issuance Date DEC 23 1991 Single Use TCN Cancels On _____ TCN No 7-16

Copy forwarded to the Nuclear Safety Group PERFORMED BY: [signature] Date DEC 23 1991

TECHNICAL SPECIFICATION VIOLATION IF NOT COMPLETED WITHIN 14 DAYS

Site Document No SO23-V-3.5 Revision No 7 Single Use TCN: YES ☐ NO ☒

Site Document Title Inservice Testing of Valves Program

1. **PREPARED BY:** Dave Chiang (ORIGINATOR) E903 (PAT) 12/23/91-0900 (DATE/TIME) Sta Tech (ORGANIZATION)

2. If required, TCN Deviation Approval **APPROVED BY:** N/A (CFDM (or designee) SIGNATURE (IF BY TELECON) PRINT NAME AND SO STATE) (DATE/TIME)

3. *Check appropriate box* ☒ Entire Document Attached ☐ Affected Page(s) Attached
Superseded/incorporated TCN(s) 7-15 (NO. (IF NONE, SO STATE)) (Not applicable for SINGLE USE TCNs)

4. This change cannot wait until the next revision of the Site Document and is required RECEIVED COM

A ☒ To implement facility design change (PFC, NCR, TFM, etc.)
Facility design change identifier NCR (INDICATE PFC, NCR, TFM, ETC.) DEC 23 1991 (DATE) 9108010133 & 9108010134 (IDENTIFIER)
Implementation of the facility design change has been determined SITE [illegible] COPY (If NO, a TCN cannot be approved until the facility design change has been implemented.)

B ☐ Other (e.g., CAR, NRC Commitments) Specific Reason _____

Description of Change(s) *(Use Reverse Side if Required)*: Change stroke times to attachment 2 for the following valves: 2HV5803 and 2HV7512; 2HV0915 is changed to make stroke time similar to other same type valves.

5. Is the document being TCN'd QA Affecting? YES ☒ NO ☐ **(If YES, complete the boxes below.) (If NO, see * below.)**
(This is indicated on the Table of Contents page of the Site Document. If not indicated, treat as QA Affecting.)

A	Does this change affect FSAR or Tech. Spec. commitments?	YES ☐ NO ☒
B	Does this change affect the nonradiological environment of any offsite area previously undisturbed during site preparation and plant construction?	YES ☐ NO ☒
C	Is the intent of the original document altered?	YES ☐ NO ☒
D	Is the document to be changed an Emergency Operating Instruction?	YES ☐ NO ☒
E	Does this change pose an unreviewed safety question per 10 CFR 50.59, i.e., does it increase the probability of occurrence or the consequences of an accident, create the possibility of a different accident, or reduce the Tech. Spec. margin of safety?	YES ☐ NO ☒

(If the answer to A, B, C, D or E is YES, a TCN is not authorized.)

6. Are changes being made to numerical data, or is new data being applied, that is being used to perform Technical Specification Surveillance testing? YES ☐ NO ☒ **If YES, Form EQ(123).16 attached. A TCN is NOT authorized until a Technical Division review is obtained.**

7. The entire document was reviewed in conjunction with this TCN and found to be acceptable as written. This constitutes an annual/biennial review disposition of Acceptable As Written-Extend (SO123-VI-1.0.2).
REVIEWED and APPROVED BY: NA (CFDM OR DESIGNEE) (DATE)

8. ***For SPG Use Only:***
Is QA/QC Review/Approval Required? YES ☒ NO* ☐ Note: Utilize current QAO Procedure Review/Approval Waiver List to respond. *If No, enter N/A on the Quality Assurance Review/Approval line below.
PERFORMED BY: Carol L. Wong (SPG) 12/23/91 (DATE) SPG

9. **Signatures Required:**

INITIAL APPROVAL

REVIEWED and APPROVED BY:** (at least one (1) SRO on the unit affected)

1) NA (PLANT MANAGEMENT STAFF - UNIT 1) (DATE) (TIME)
Could this TCN affect or does it represent a change to a plant operation in progress? YES*** ☐ NO ☐

2) [signature] (PLANT MANAGEMENT STAFF - UNITS 2&3) 12/23/91 (DATE) 3PP (TIME)
Could this TCN affect or does it represent a change to a plant operation in progress? YES*** ☐ NO ☒

3) NA (SRO - UNIT 1) (DATE) (TIME)

4) Michael Jones (SRO - UNITS 2&3) 12/23/91 (DATE) 1510 (TIME)

REVIEWED and APPROVED BY:

FINAL APPROVAL

5) _____ (COGNIZANT FUNCTIONAL DIVISION MANAGER) (DATE)

6) _____ (QUALITY ASSURANCE - UNITS 1, 2 AND 3) (DATE)

* If a document is Not QA Affecting, obtain initial approval from the Cognizant Supervisor(s) on the affected Unit(s); (signs Plant Management Staff line(s)) and final approval from the CFDM prior to submittal to CDM. No other signatures are required.

** If QA Affecting, approval shall be by one member of the Plant Management Staff, and one SRO Licensed on the unit or units affected. (For TCN approval, members of the Plant Management Staff are defined as the supervisor in charge of the shift, or as designated in writing by the CFDM, exercising responsibility in the specific area and unit(s) addressed by the change.)

*** If YES, the Shift Superintendent shall provide the required SRO approval.

INSERVICE TESTING OF VALVES PROGRAM

1.0 OBJECTIVES

1.1 To define the requirements for inservice testing of ASME Code Class 1, 2 and 3 valves.

1.2 Further, it is the object of this procedure to meet the requirements of References 2.4.5, 2.4.1 and 2.1.1 through 2.1.13, and 2.1.16 through 2.1.19. A complete description of organizational responsibilities to meet the requirements of Reference 2.4.5 is provided in Reference 2.2.1. This program is in compliance with References 2.4.2 and 2.4.4, except as noted in approval valve relief requests, see Attachment 7.

1.3 To describe and delineate applicable tests and utilize the tests for both pre-service and inservice testing unless indicated otherwise.

2.0 REFERENCES

2.1 NRC Commitments

2.1.1 Letter, K. P. Baskin (SCE) to G. W. Knighton (NRC), Docket No. 50-361 [Forwarded Unit 2 Program, Revision 5], July 5, 1983

2.1.2 Letter, K. P. Baskin (SCE) to G. W. Knighton (NRC), Docket No. 50-361 [Forwarded Unit 3 Program, Revision 0], July 5, 1983

2.1.3 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 6 and Unit 3 Program, Revision 1], October 31, 1983

2.1.4 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 7 and Unit 3 Program, Revision 2], May 11, 1984

2.1.5 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 8 and Unit 3 Program, Revision 3], September 26, 1984

2.1.6 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 9 and Unit 3 Program, Revision 4], April 4, 1985

2.1.7 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 10 and Unit 3 Program, Revision 5], July 23, 1985

2.1.8 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 11 and Unit 3 Program, Revision 6], December 19, 1985

2.0 REFERENCES (Continued)

2.1.9 Letter, M. O. Medford (SCE) to G. W. Knighton (NRC), Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 12 and Unit 3 Program, Revision 7], October 10, 1986

2.1.10 Letter, J. Rood (NRC) to K. P. Baskin (SCE), Interim Relief From Requirements for Inservice Pump and Valve Testing Under 10 CFR 50.55a(g)(1), December 24, 1986

2.1.11 Letter, M. O. Medford (SCE) to NRC Document Control Desk, Docket Nos. 50-361 and 50-362 [Forwarded Unit 2 Program, Revision 13 and Unit 3 Program, Revision 8], August 21, 1987

2.1.12 Letter, F. R. Nandy (SCE) to NRC Document Control Desk, Docket Nos. 50-361 and 50-362, Inservice Testing Program for Pumps and Valves (TAC 55120/1) [Forwarded Unit 2 Program, Revision 14 and Unit 3 Program, Revision 9], May 18, 1990

2.1.13 Units 2 and 3 Technical Specifications

2.1.14 Topical Quality Assurance Manual (TQAM)

2.1.15 Final Safety Analysis Report (FSAR)

2.1.16 Letter, F. R. Nandy (SCE) to NRC, Docket Nos. 50-361 and 50-362, Status of NRC Safety Evaluation Report, Appendix C Items for the Inservice Testing Program for Pumps and Valves [Forwarded Unit 2 Program Status], April 12, 1991

2.1.17 Letter, R. M. Rosenblum (SCE) to NRC, Docket Nos. 50-361 and 50-362, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1 [Forwarded Unit 2 Program, Revision 15 and Unit 3 Program, Revision 10], June 18, 1991

2.1.18 Letter, R. M. Rosenblum (SCE) to NRC, Docket Nos. 50-361 and 50-362, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1 [Forwarded Unit 2 Program, Revision 16 and Unit 3 Program, Revision 11], July 31, 1991

2.1.19 Letter, J. E. Dyer (NRC) to M. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves (TAC Nos. 80642 and 80643), October 2, 1991

2.2 Order

2.2.1 SO123-IN-1, Inservice Inspection Program

2.3 Procedures

2.3.1 SO23-V-3.5.4, Inservice Testing of Check Valves

2.0 REFERENCES (Continued)

2.3.2 SO23-V-3.13, Containment Penetration Leak Rate Testing

2.3.3 SO123-XV-5, Nonconforming Material, Parts or Components

2.3.4 SO23-XV-6, Technical Specification Response Time Surveillance Implementing Procedure Master List

2.3.5 Operating Instruction SO23-3-3.31.1, RCS Pressure Isolation Valve Leak Rate Measurement

2.4 Other

2.4.1 Code of Federal Regulations, Title 10, Part 50

2.4.2 NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs, April 3, 1989

2.4.3 Letter, J. G. Partlow, NRC, to All Licensees, etc, Minutes of the Public Meetings on Generic Letter 89-04, October 25, 1989

2.4.4 NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990

2.4.5 American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section XI, 1977 Edition, including Addenda through Summer 1979

2.4.6 Memo for File, March 27, 1986, Set-point Verification Test Requirements

3.0 PREREQUISITES

3.1 Prior to use of a user-controlled copy of this document, it is the user's responsibility to verify that the revision and any TCNs are current by utilizing one of the following methods:

3.1.1 Check it against a Corporate Documentation Management-SONGS (CDM-SONGS) controlled copy and any TCNs.

3.1.2 Access the San Onofre Document Management System (SDMS) [San Onofre local area network (SLAN) or online system].

3.1.3 Contact CDM-SONGS by telephone or through counter inquiry.

3.1.4 Obtain a user-controlled copy of this procedure from CDM-SONGS or SDMS SLAN.

3.0 PREREQUISITES (Continued)

3.2 The implementing Procedures shall be updated within one (1) month after an approved revision or [illegible] this procedure is issued by CDM. The Technical Division IST Coordinator shall provide the Station Operations and Maintenance Manager with a copy of the approved revision to serve as notification of a revision.

4.0 PRECAUTIONS

4.1 The ASME Section XI test requirements (Reference 2.4.5) apply only to selected valves that can be tested without placing the Plant in an unsafe condition. Therefore, care should be exercised that no test will be conducted so a failure of the test would put the Plant in an unsafe condition.

4.2 Special care must be exercised to ensure that the allowed test interval is not exceeded. For valves routinely tested at one (1) or three (3) month intervals, a test interval extension is allowed. This extension shall not exceed twenty-five percent (25%) of the inspection interval.

5.0 CHECKLIST(S)

5.1 None

6.0 PROCEDURE

6.1 Test Interval

6.1.1 The valve inservice testing program covers a ten (10) year interval commencing on August 18, 1983 and terminating on August 17, 1993 as stated in Reference 2.1.8.

6.1.2 When the Edition and Addendum of the Code are changed, such as at the beginning of a new ten year interval, the following individuals and agencies shall be notified and provided a copy of the new program: State of California [See Reference 2.1.14, the TQAM], ANII, NRC. In addition, the following documents may need updating and shall be reviewed and updated as necessary: FSAR [Reference 2.1.15], Valve Relief Requests, TQAM and Technical Specifications [Reference 2.1.13].

6.2 Pre-service Testing

6.2.1 Each valve, after installation and prior to service, shall be tested as required in Reference 2.4.5, Article IWV-3000. These tests shall be conducted under conditions similar to those to be experienced during inservice tests. Safety and relief valves which will be removed and bench tested during subsequent inservice tests need not be installed prior to the preservice test.

6.0 PROCEDURE (Continued)

6.3 Valve Category

6.3.1 Valves are categorized as follows: [Reference 2.4.5, IWV-2200]:

.1 Category A - valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function.

.2 Category B - valves for which seat leakage in the closed position is inconsequential for fulfillment of their function.

.3 Category C - valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves).

.4 Category D - valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosive actuated valves.

NOTE: Valves identified in this Procedure have been placed in one or more of these categories. When more than one distinguishing category characteristic is applicable, all requirements of each of the individual categories are applicable. Duplication or repetition of common testing requirements is not necessary.

6.3.2 All check valves are Category "C", however, some require that their seat leakage be limited to a specific amount. In these cases they are categorized at Category "AC". The categorization of a check valve is not dependent solely on the function performed by the valve, such as whether it is a containment isolation valve. When determining the category of a check valve, as a minimum, the following aspects of its performance requirements shall be considered. If any of these considerations indicate that Category "C" testing may not be adequate, the check valve shall be assigned Category "AC" and shall receive a seat leak test as required by this program [See Reference 2.4.3, Question 107].

.1 Determine whether the flow requirements for connected systems can be achieved with the maximum possible leakage through the check valve.

.2 Evaluate the effect of reduced system flows resulting from the leakage of the check valve on the performance of other systems and components.

6.0 PROCEDURE (Continued)

6.3.2.3 Evaluate the consequences of the loss of water from the system.

.4 Evaluate the effect that backflow through the valve may have on piping and components, such as the effect of high temperature and thermal stresses.

.5 Determine the radiological exposure to plant personnel and the public caused by the leak.

6.4 Requirements

6.4.1 This program uses the same test interval definitions as those used in the Technical Specifications, namely, one month is defined as 31 days and one quarter is defined as 92 days.

6.4.2 Reference 2.4.5, Subsection IWV defines the requirements for in service testing of Code Class 1, 2 and 3 valves. Test results are intended to verify valve operational readiness on a continuing basis.

6.4.3 Concerning valves tested at Cold Shutdown Intervals:

.1 The establishment of the priority and test schedule for cold shutdown valves is the responsibility of the Station Technical Division. The IST Coordinator of the Technical Division will execute this responsibility.

.2 (See Attachment 7, VRR No. 24) For each outage of greater than 48 hours, the IST Coordinator will provide two lists of valves to be tested prior to returning to Mode 2 to Operations and Maintenance.

List #1: Valves which must be tested each outage (if it has been greater than 90 days since the last test).

List #2: Additional valves which must be tested for the specific outage.

NOTE: When a valve is needed in cold shutdown for system operability (examples: the shutdown cooling system, boric acid flow path or RCS inventory control), but cannot be tested in advance of reaching cold shutdown, the valve shall be tested within 48 hours of being placed in service. This testing should be incorporated into the procedure for initiating system operation upon reaching the applicable mode.

6.0 PROCEDURE (Continued)

6.4.3.3 Operations and Maintenance will be required to conduct the testing prior to entering Mode 2 from cold shutdown and, within 30 days, provide the test results to the IST Coordinator. The Operations Supervisor of Plant Coordination and the Unit Maintenance Manager shall have the responsibility for monitoring the surveillance schedule for all valves, except for those listed in Reference 2.3.1. (These are the responsibility of the Technical Division.)

.4 Following each outage, the IST Coordinator will review the valve IST results and create a list (as in step 6.4.2.2.1 above) of the next set of valves requiring tests. This list will be based on four factors:

a. The importance-to-safety assigned each valve not tested in the last 90 days.

b. The maintenance history (reliability) of each valve.

c. The time since each valve was tested.

d. As a matter of policy, an initial requirement of 25% (minimum) of all cold shutdown valves will be tested each Mode 5 for the outage of greater than 48 hours duration.

This new list will be sent to Operations and Maintenance, as in step 6.4.3.2 above, and the process repeated.

.5 The test schedule for valves tested quarterly or at refueling intervals will not be addressed in the memo discussed above. Attachments 2 and 4 of this procedure provide sufficient direction for these tests.

6.4.4 Attachments 2 and 4 itemize all valves subject to the test requirements of this Procedure including the valve category and test mode.

6.4.5 Category A and B Valves

.1 Test Frequency: Category A and B valves shall be exercised at least once every three (3) months, with the exceptions defined below and as noted in Attachments 2 and 4.

6.0 PROCEDURE (Continued)

6.4.5.2 Exercising Procedure

NOTE: Valves tested at cold shutdown intervals shall be tested when and as directed by the Technical Division IST Coordinator. See step 6.4.2.2, above.

.1 Valves shall be exercised to the position required to fulfill their function, unless such operation is not practical during Plant operation. If only limited operation is practical during Plant operation, the valve shall be part-stroke exercised during Plant operation and full-stroked during each cold shutdown. Valves that cannot be exercised during normal Plant operation are specifically identified in Attachments 2 and 4 and shall be full-stroke exercised during each cold shutdown.

.1.1 In case of frequent cold shutdowns, these valves need not be exercised more often than once every three (3) months.

.2 The necessary valve stem or disk movement shall be established by exercising the valve while observing either an appropriate indicator, which signals the required change of valve stem or disk position, or indirect evidence, such as changes in system pressure, flow rate or temperature which reflect stem or disk position.

.3 Power Operated Valves

NOTE: If a valve exceeds its limiting stroke time it shall be considered INOPERABLE until it is analyzed and the disposition is documented on an NCR. If a valve stroke time increases such that it is still within its limiting stroke time, but must be tested once each month as discussed below it shall be considered IN ALERT and may be considered OPERABLE unless other conditions or circumstances dictate differently.

.1 The limiting value of full-stroke time of each power operated valve is specified, where applicable, in Attachments 2 and 4. Reference 2.3.4 stroke time limits are used where applicable.

.2 The stroke time of all power-operated valves shall be measured to the nearest second or 10% of the maximum allowable stroke time, whichever is less, whenever such a valve is full-stroke tested.

6.0 PROCEDURE (Continued)

6.4.5.3.2.1 The valve stroke time is measured with a stopwatch. The stopwatch is started when the valve is actuated and stopped when the back light for the desired valve position is the only one illuminated.

.3 Test Requirement for valves in ALERT Range is stated in the Code as follows, "IWV-3413(c): if an increase in stroke time of 25 % or more from the previous test for valves with stroke times greater than 10 sec. or 50 % or more for valves with stroke times less than or equal to 10 sec. is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed."

.3.1 [See VRR No. 16 in Attachment 7] Instead of the previous stroke time, use a REFERENCE STROKE TIME.

.3.1.1 If an increase in stroke time of 25 % or more from the REFERENCE STROKE TIME for valves with stroke times greater than 10 sec. (or 50 % or more for valves with stroke times less than or equal to 10 sec.) is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed.

.3.1.2 REFERENCE STROKE TIME is the average stroke time since the last maintenance that could have affected stroke time (or last three strokes, whichever is greater). The REFERENCE STROKE TIME value if used for comparison of test data shall be established when the valve is known to be in good operating condition.

.3.2 During valve stroke testing, any abnormality or erratic action shall be reported to the SRO Operations Supervisor. He shall report this to the IST Coordinator, if, in his judgement and based on his previous experience, this is warranted. [See Reference 2.4.5, Paragraph IWV-3417(a)]. The objective of this requirement is to identify and repair valves (where needed) that are not operating properly, in cases where this is not reflected in an unusual or non-conforming stroke time.

.3.3 Power operated valves with normal stroke times of 2 seconds or less are referred to by the NRC staff as "rapid-acting valves." Relief has been granted from the requirements of Section XI, Paragraph IWV-3417(a) for these valves when the maximum limiting value of 2 seconds or less is assigned. When the 2 second limit is exceeded, the valve shall be declared inoperable and corrective action taken in accordance with Reference 2.4.5, Paragraph IWV-3417(b). Also, see VRR No. 16 in Attachment 7.

6.0 PROCEDURE (Continued)

6.4.5.4 Valves in Regular Use

.4.1 Valves which operate in the course of Plant operation at a frequency which would satisfy the exercising requirements of this Procedure need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and recorded in the Plant record at intervals no greater than three (3) months.

.5 Valves in Systems Out of Service

.5.1 If valves are in a system that is out-of-service, exercising is not required for such valves except within 30 days prior to the return of the system to service.

.6 Fail-Safe Valves

.6.1 Valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power. If these valves cannot be tested once every three (3) months, they shall be tested during each cold shutdown. In case of frequent cold shutdowns, these valves need not be tested more often than every three (3) months.

6.4.6 Category C Valves

.1 Safety and Relief Valve Tests

NOTE: Safety and relief valves which will be removed and bench tested during subsequent inservice tests need not be installed prior to the preservice tests (Reference 2.4.5, Article IWV-3000). Otherwise, each valve, after installation and prior to service, shall be tested as required by Reference 2.4.5, Article IWV-3000. These tests shall be conducted under conditions similar to those to be experienced during subsequent inservice tests.

.1.1 Test Frequency

.1.1.1 The safety and relief vaives will be tested with the following frequencies:

.1.1.1.1 There are 18 safety valves (of the same type) per unit in the main steam system for which testing is required. All valves will be tested on a schedule determined using Reference 2.4.5, Table IWV-3510-1 as shown in Attachment 6.

6.0 PROCEDURE (Continued)

6.4.6.1.1.1.2 There are 2 pressurizer relief valves per unit. Each will be tested on a schedule determined using Reference 2.4.5, Table IWV-3510-1 as shown in Attachment 6.

.1.1.1.3 There is one (1) shutdown cooling line safety valve per unit. Each will be tested on a 30 month cycle.

.1.1.1.4 The scheduling and bookkeeping required for these tests shall be the responsibility of Maintenance.

.1.2 Testing Procedure

.1.2.1 Safety and relief valve setpoints will be tested in accordance with ASME Performance Test Code 25.3-1976 and Reference 2.4.6. Bench testing with suitable hydraulic or pneumatic equipment, testing with system pressure or testing in place with hydraulic or pneumatic assist equipment may be used.

.1.3 Additional Tests

.1.3.1 If any valve in a system fails to function properly during a regular test, additional valves in the system shall be tested as determined by the requirements of Reference 2.4.5, Paragraph IWV-3513. If any of these additional valves fail to function properly on test, all valves in the system in this category shall be tested.

.2 Check Valve Tests

.2.1 Test Frequency

.2.1.1 Check valves shall be exercised at least once every three months, with exceptions as defined below and in Attachments 2 and 4. Certain check valves are tested during the corresponding pump IST [See Reference 2.3.1].

.2.1.1.1 Check valves tested at Cold Shutdown intervals shall be tested when and as directed by the IST Coordinator in the Technical Division.

.2.1.2 The scheduling and bookkeeping required for these tests will be the responsibility of Station Engineering. To determine the operational mode required for valve testing, refer to Attachments 2 and 4, Test Mode Column.

.2.1.3 The responsibilities for testing (including scheduling and bookkeeping) of check valves are explained in Reference 2.2.1.

6.0 PROCEDURE (Continued)

6.4.6.2.2 Exercising Procedure

2.2.1 Check valves shall be exercised to the position required to fulfill their function, unless such operation is not practical during plant operation. Normally closed check valves that cannot be operated during normal Plant operation are identified in Attachments 2 and 4 and shall be exercised during each cold shutdown or refuelings. In case of frequent cold shutdowns, these check valves need not be exercised more often than once every three (3) months.

.2.2.1.1 Normally Open Valves: Valves normally open during plant operation, whose function is to prevent reverse flow, shall be tested in a manner which proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by observation of appropriate pressure indications in the system, or by other positive means.

.2.2.2 Normally Closed Valves: Valves normally closed during plant operation, whose function is to open on reversal of pressure differential, shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated, or a mechanical opening force is applied to the disk.

.2.2.2.1 Confirmation that the disk moves away from the seat shall be by visual observation, by observation of substantially free flow through the valve as indicated by appropriate pressure indications in the system, or by other positive means. This test may be made with or without flow through the valve.

.2.2.2.2 Full Stroke testing (open) of check valves is normally done using flow.

NOTE: The following may be a new requirement for certain tests. Station Technical Division and Operations will jointly develop the revised test techniques, document the bases and implement them during the upcoming refueling cycles for Units 2 and 3 (to be completed prior to cycle 7).

.2.2.2.2.1 The flow test shall be designed such that degradation of check valve performance can be detected. This means that rather than specifying only the minimum flow fore the test (example: "greater than 2000 gpm"), a range of acceptable flow shall be used (examples: "2000 ± 150 gpm", or, "1850 to 2150 gpm").

6.0 PROCEDURE (Continued)

6.4.6.2.2.2.2.2 The test setup and alignment shall be standardized to the extent possible to allow comparison of results and examination of trends.

.2.2.2.2.3 The criteria and the basis for the criteria shall be documented and available for the auditors. (See Reference 2.4.3, Question 7).

6.4.7 For valves identified in Attachments 2 and 4 that are to be tested by disassembly, the internals shall be visually inspected for worn or corroded parts, and the valve disks shall be manually exercised. It shall be verified that the valve is capable of full-stroking and that the internals of the valve is structurally sound. This testing shall be conducted at each refueling outage on a rotating basis. One valve of this group (a group is identified as all the valves of the same manufacturer, size, model and service) will be tested each successive refueling outage, until the entire group has been tested. If the disassembled valve is not capable of being full-stroke exercised or there is binding or failure of the valve internals, the remaining valves in this group shall also be disassembled, inspected, and manually full-stroke exercised during the same outage. A partial flow test shall be performed on the disassembled valve following reassembly, but before it is returned to service.

.1 If a check valve within a sample group is disassembled and inspected in a non-refueling outage, the interval may altered for the balance of the group if it is justified in writing by the Technical Division Cog. Engineer and approved by the Cog. Engineering Supervisor. The justification shall address the effect of the proposed disassembly and inspection schedule on the sampling program. The justification shall address the maintenance history and known valve condition from the previous inspections rather than subjective qualitative judgement. Position 2 of Reference 2.4.2 indicates the criteria that need to be addressed (See Reference 2.4.3, Question 14).

6.4.8 Category D Valves

.1 There are no Category D Class 1, 2 or 3 valves at San Onofre Units 2 and 3. Therefore, the Section XI test requirements pertaining to this category are not applicable.

6.4.9 Containment Isolation Valves Requiring Seat Leak Tests

.1 These valves are identified in Attachments 2 and 4 and shall be tested at least once every two (2) years in accordance with Reference 2.4.1, Appendix J.

6.0 PROCEDURE (Continued)

6.4.9.1.1 These valves are containment isolation valves and will be tested with a pressure differential in the same direction as when the valve is performing its function, with the following exceptions:

.1.1.1 Globe-type valves may be tested with pressure under the seat.

.1.2 Butterfly valves may be tested in either direction, provided their seat construction is designed for sealing against pressure on either side.

.1.3 Leakage Rate Analysis

.1.3.1 Leakage rate measurements will be compared with previous measurements and with the permissible leakage rates specified using Reference 2.3.2. The acceptance criterion (permissible Leak Rate) for each valve can be determined by taking the "0.6La" and subtracting the leak rates of all penetrations in the Appendix J Program except the valve under test. These are available from the records created in accordance with Reference 2.3.2. The result is the acceptance criterion of the valve under test in SCCM or other appropriate units.

NOTE: Where a question of the acceptability of the valve leak rate measurement may exist, the allowable leakage can be calculated using the rules of Reference 2.4.5, Subarticle IWV-3423(e).

.1.4 Test Medium valve repair, replacement and maintenance

.1.4.1 The test medium used for the leak rate tests will be specified in Reference 2.3.2 for the various valve tests.

6.4.10 Reactor Coolant System Pressure Isolation Valves Requiring Seat Leak Tests

.1 These valves are identified in Attachments 2 and 4 and shall be tested in accordance with applicable Operating Instructions.

.1.1 These valves are reactor coolant system pressure isolation valves, and will be tested with the pressure differential in the same direction as when the valve is performing its function, with the following exception:

6.0 PROCEDURE (Continued)

6.4.10.1.1.1 Leakage tests involving pressure differentials lower than function pressure differentials are permitted in those types of valves in which service pressure will tend to diminish the overall leakage channel opening, as by pressing the disk into or onto the seat with greater force. Gate valves, check valves and globe-type valves having function pressure differential applied over the seat, are examples of valve applications satisfying this requirement.

.1.1.2 When leakage tests are made in such cases using pressures lower than function maximum pressure differential, the observed leakage shall be adjusted to function maximum pressure differential value. This adjustment shall be made by calculation appropriate to the test media and the ratio between test and function pressure differential, assuming leakage to be directly proportional to the pressure differential to the one-half power.

.2 Leakage Rate Analysis

.2.1 Leakage rate measurements shall be compared with previous measurements and with the permissible leakage rates specified in Reference 2.3.5.

.3 Test Medium

.3.1 The test medium used for the leak rate tests will be specified in applicable Operating Instructions.

6.4.11 Valve Repair, Replacement and Maintenance

.1 After a valve or its control system has either been replaced, repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested as necessary to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. Adjustment of stem packing, removal of the bonnet, stem assembly or actuator, or disconnection of hydraulic or electrical lines are examples of maintenance that could affect valve performance parameters.

6.4.12 Position Indication Test (PIT)

.1 All valves with remote position indicators which are inaccessible for direct observation during Plant operation shall be visually observed at the same (or greater) frequency as scheduled refueling outages, but not less than one observation every two (2) years to confirm that remote valve indications accurately reflect valve operation.

6.0 PROCEDURE (Continued)

NOTE: The requirements to initiate an NCR apply to the IST Program. See Reference 2.3.3 for NCR initiation criteria.

6.5 Corrective Measures

NOTES: 1. It will be the Shift Superintendent's responsibility to determine the Technical Specification requirements for operability of the affected system.

2. The requirements to initiate an NCR apply to the IST Program. See Reference 2.3.3 for criteria applicable to the initiation of NCRs.

3. THE TECHNICAL SPECIFICATION CLOCK: In cases during valve testing in systems covered by the Technical Specifications, if the valve is declared inoperable, this would result in the plant entering an action statement of the Technical Specifications. When a valve fails its IST, the valve is considered inoperable and the Technical Specification Action Statement time starts. Recalibration of instrumentation and retesting to show the valve is still capable of fulfilling its function are an alternative to replacement or repair and not an additional action that can be taken before declaring the valve inoperable. In summary, the NRC has taken the position (Reference 2.4.2, Attachment 1, position 8) that as soon as the data is recognized as exceeding the limiting value of full-stroke time for valves, the associated valve must be declared inoperable and the Technical Specification Action time must be started.

6.5.1 Category A and B valves

.1 If a valve fails to exhibit the required change of valve stem or disk position, notify the Shift Superintendent immediately. Corrective action shall be initiated immediately. The valve shall be declared inoperable as required by the Technical Specifications (Reference 2.1.3).

6.5.1.2 When corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup. A retest showing acceptable operation shall be run following any required corrective action before the valve is returned to service.

6.5.2 Category C Valves

.1 Safety and relief valves failing to function properly during testing shall be repaired or replaced, and shall successfully pass a retest before being returned to service.

6.0 PROCEDURE (Continued)

6.5.2.2 If a check valve fails to exhibit the required change of disk position, notify the Shift Superintendent immediately. Corrective action shall be initiated immediately. The valve shall be declared inoperable immediately per Technical Specifications. When corrective action is required as a result of testing during cold shutdown, the condition shall be corrected before startup. A retest showing acceptable performance shall be run following any required corrective action before the valve is returned to service.

6.5.3 Valves Requiring Seat Leak Tests

.1 Valves with leakage rates exceeding the permissible leakage rates will be replaced or repaired.

.2 Reference 2.4.5, Paragraph IWV-3427(b), specifies additional requirements on increased test frequencies for valve sizes of six inches and larger and repairs or replacement over the requirements of IWV-3427(a). The NRC has determined that the usefulness of Paragraph IWV-3427(b) does not justify the burden of complying with this requirement. Accordingly, this Paragraph is not implemented in this program. [See Reference 2.4.2, Position 10].

6.6 Exceptions

NOTE: Valves which fall into the classifications below are identified in Attachments 2 and 4 and shall be cycled, as practicable, at each cold shutdown or refueling, but not more often than once every three (3) months.

6.6.1 Any valve which, when exercised (cycled), could put the Plant in an unsafe condition, should not be tested. Below are examples of the types of valves excluded from exercising (cycling) tests during Plant operation.

.1 All valves whose failure in a nonconservative position during the cycling test would cause a loss of system function.

.2 All valves whose failure to close during a cycling test would result in a loss of Containment integrity.

.3 All valves which, when cycled, could subject a system to pressures in excess of their design pressures.

6.0 PROCEDURE (Continued)

6.7 Instrumentation

6.7.1 Instrumentation used shall meet the requirements of Reference 2.4.5. Instruments, together with their transmitters, where used, shall be calibrated in accordance with the appropriate Maintenance Procedures.

6.8 Determination of Program Scope

6.8.1 Our strategy for determining the valve IST program scope involves the following [See Reference 2.4.2, Attachment 1, Position 11]:

.1 Review of design changes by the IST Coordinator.

.2 Guidance on IST Scope rules is provided to the engineering organizations associated with the design process.

.3 Criteria used for determining IST Program scope includes References 2.4.5, 2.4.2 and 2.4.3 and Regulatory Guide 1.26. In addition Engineering judgement and prudence are applied when reference criteria are not directly applicable.

6.8.2 The following activities apply to cases where plant conditions prevent full stroke testing with flow for check valves to be tested in the open direction. The IST Coordinator and the Cog Engineer will periodically evaluate whether plant conditions have been altered in such a way that full stroke testing using flow is possible. If so, the program shall be revised as well as the test procedures to provide for such testing. [Reference 2.4.3, Question 11.]

6.8.3 Determination of Reasonableness of Stroke Time Acceptance Criteria for Power Operated Valves

.1 Position 5 of Attachment 1 to Reference 2.4.2 states, in part:

> "... IWV-3413(a) of the ASME Code requires that the licensee specify the limiting value of full-stroke time of each power operated valve. The corrective action of IWV-3417(b) must be followed when these limiting values are exceeded. The Code does not provide any requirements or guidelines for establishing these limits nor does it identify the relationship that should exist between these limits and any limits identified for the relevant valves in the plant Technical Specifications or safety analysis.

6.0 PROCEDURE (Continued)

6.8.3.1 (Continued)

"The purpose of the limiting value of full-stroke time is to establish a value for taking corrective action on a degraded valve before the valve reaches the point where there is a high probability of failure to perform its safety function if called upon. The NRC has, therefore, established the guidelines described below regarding limiting values of full-stroke time for power operated valves.

"The limiting value of full-stroke time should be based on the valve reference or average stroke time of a valve when it is known to be in good condition and operating properly. The limiting value would be a reasonable deviation from this reference stroke time based on the valve size, valve type, and actuator type. The deviation should not be so restrictive that it results in a valve being declared inoperable due to reasonable stroke time variations. However, the deviation used to establish the limit should be such that corrective action would be taken for a valve that may not perform its intended function.

"When the Technical Specifications or safety analysis limit for a valve is less than the value established using the above guidelines, the Technical Specifications or safety analysis limit should be used as the limiting value of the full-stroke time.

"When the Technical Specifications or safety analysis limit for a valve is greater than the value established using the above guidelines, the limiting value of full-stroke time should be based on the above guidelines instead of the Technical Specifications or safety analysis limit."

6.8.3.2 Periodically, the IST Coordinator will review the stroke time history and average stroke times for each valve in the Units 2 and 3 IST Programs and determine the appropriate stroke time limits. This determination will use the above guidelines. Revised stroke time limits will be incorporated into the IST Program documents.

6.8.4 Design reviews discussed previously will provide the IST Coordinator with a mechanism to reverify that Relief Requests are still valid based on ongoing plant modification activities. In addition, the IST Coordinator will keep abreast of changes in technology for this same purpose. [Reference 2.4.3, Question 69].

6.0 PROCEDURE (Continued)

6.8.5 Application of Post-Modification Results

.1 In addition to changes in scope of the IST Program, design modification may also possibly affect the testing even though no component additions or deletions occur as a result. For example if any valve operator is modified or replaced, the stroke time might be affected for a valve already in the IST Program.

.2 Accordingly, these design changes will be identified as "IST Program Affecting". By the engineer developing the change package in accordance with the design procedures currently in effect. The IST Coordinator will review these changes, and determine if there is an impact on the IST programs such as a stroke time limit change.

.3 The IST Coordinator is responsible for determining if an IST Program change is needed an implementing it as soon as reasonably achievable.

.3.1 This might include requesting additional non-routine stroke tests to determine if the stroke time has been changed substantially for a modified valve and then changing the IST Program to reflect the newly developed requirements.

7.0 RECORDS

7.1 Records pertaining to inservice testing of valves shall be maintained in accordance with Reference 2.4.5, Article IWV-6000 of Section XI. The records shall include, as a minimum, the following:

7.1.1 A summary listing consisting of a schedule check-off list for valve testing and bookkeeping processes, and

7.1.2 Records of tests and examinations.

7.2 Records of tests and examinations shall be provided to the Technical Division IST Coordinator (or made available for inspection) within 30 days of completion of the test or examination (copy), and to CDM-SONGS (original) as soon as possible thereafter by Operations and Maintenance.

INSERVICE VALVE TESTING

TABLE INFORMATION

A. Attachments 2 and 4 display the following columns:

1. Code Class: ASME Section III Class of the valves listed.

2. Sec XI Cat.: ASME Section XI Category, See IWV-2200.

3. Valve and Actuator Type: Abbreviated as follows:

Valve Type	Abbreviation
Gate	GA
Globe	GL
Check	CK
Safety	SV
Relief	RV
Butterfly	BTF
Stop Check	SCK
Ball	BALL
Split Disc Check	SDCK
Angle	AV

Actuator Type	Abbreviation
Motor Operated	MO
Air Operated	AO
Solenoid Operated	SO
Hydraulic Operated	HY
Self Actuated	SA
Manual	M
Electro Hydraulic	EH

4. Norm Pos.: Normal position of the valve.

5. Test Type and Mode: Test lists the test or tests that will be performed for each valve to fulfill the requirements of Reference 2.4.5, Subsection IWV. The following tests and abbreviations are used:

Seat Leak Test AT

Valve will be seat leak tested at the appropriate functional differential pressure.

Full Stroke Exercise Test BT

Valve will be full stroke exercised for operability in the direction necessary to fulfill its safety function.

INSERVICE VALVE TESTING (Continued)

5. (Continued)

Partial Exercise Test BTP

Valve will be part-stroke exercised when full stroke exercising is impractical.

Check Valve Exercise Test CVT

Check valve will be exercised to the position required to fulfill its function. This functional test will be verified by the operation of the required system.

Check Valve Partial Exercise Test CVP

Check valve will be part stroke exercised, (i.e., disc moves away from seat) when full stroke exercising is impractical.

Fail Safe Test FST

All valves with fail-safe actuators will be tested to verify proper fail safe operation upon loss of actuator power.

Position Indication Check PIT

All valves with remote position indicators will be checked to verify that remote valve indications accurately reflect valve position.

Relief Valve Setpoint Check RVT

Relief and Safety vavle setpoints will be verified in accordance with Reference 2.4.5 IWWV-3510.

INSERVICE VALVE TESTING (Continued)

Test Mode indicates the frequency at which the tests will be performed. The following abbreviations are used:

Cold Shutdown CS

(See Attachment 7, VRR No. 24) Valve testing at cold shutdown is valve testing which commences not later than forty-eight (48) hours after cold shutdown and continues until required testing is completed or plant is ready to return to service. "Cold Shutdown" testing will be initiated within 48 hours of entry into Mode 3 for valves requiring testing in Mode 3, within 48 hours of entry into Mode 4 for valves requiring testing in Mode 4, and within 48 hours of entry into Mode 5 for valves requiring testing in Mode 5. Completion of all required valve testing is not a requisite to plant startup. Valve testing which is not completed during a cold shutdown will be performed during subsequent cold shutdowns to meet the Code specified testing requirements. No valve need be tested more often than once every 90 days. Section XI of the Code uses Cold Shutdown "CS" for all modes other than Operating and Refueling and therefore "CS" *as used in the IST Program* can include Tech Spec Modes 3, 4 or 5. All CS valves are not testable in all modes and therefore applicable implementing procedures (Operating Instructions) will specify which valves can be tested in a given Mode.

NOTE: For planned cold shutdowns, where testing of all the valves identified in the IST program for testing in the cold shutdown mode will be completed, exceptions to the 48 hours may be taken.

Normal Operation OP

Valve tests with this designation will be performed once every three months.

Reactor Refueling RR

Tests with this designation shall be conducted at least once every two years [See Reference 2.4.5, Paragraph IWV-3422] except for relief valve tests which are scheduled in accordance with Reference 2.4.5, Paragraph IWV-3511.

6. Str. Time: Stroke time upper limit. The valve under test may stroke at any duration up to and including this value, unless otherwise noted in the table.

INSERVICE VALVE TESTING (Continued)

7. Test Organization (Procedure): "O" indicates that the Operations Division is responsible for conducting this test, "M" indicates the Maintenance Division and "T" indicates the Station Technical Division. The entry in parentheses is the Procedure number used to conduct the test.

8. Notes and Valve Relief Requests: Self-explanatory (see Section B, Explanation of Notes).

9. Operational modes as defined by the Technical Specifications are as follows:

Mode	Reactivity Condition, K_{eff}	% of Rated Thermal Power*	Average Coolant Temperature
1 - Power Operation	$\geq$ 0.99	> 5%	$\geq$ 350°F
2 - Startup	$\geq$ 0.99	$\leq$ 5%	$\geq$ 350°F
3 - Hot Standby	< 0.99	0	$\geq$ 350°F
4 - Hot Shutdown	< 0.99	0	350°F>T_{avg} >200°F
5 - Cold Shutdown	< 0.99	0	$\leq$ 200°F
6 - Refueling **	$\leq$ 0.95	0	$\leq$ 140°F

* Excluding Decay Heat

** Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

B. EXPLANATION OF NOTES

NOTES:

1. This valve will be tested by disassembly, the valve internals shall be visually inspected for worn or corroded parts, and the valve disk shall be manually exercised. See Section 6.4.6 for additional details of the testing requirements for this valve.

2. This valve is a safety valve or relief valve and will be tested at the frequency stated in reference 2.4.5, IWV-3511.

3. The maximum stroke time associated with these valves are protected values and may only be changed under certain circumstances. See Attachment 8.

4. The maximum allowable stroke times for valves 2(3)HV4705, 2(3)HV4706, 2(3)HV4715, 2(3)HV4716 and 2(3)HV4730 are protected values and may not be relaxed without revision to the disposition of Non-conformance Report (NCR) G-992.

5. This valve cannot be partially stroke exercised during Plant operation.

6. All motor operated valves fail as is and, therefore, do not require a fail-safe test as described in Reference 2.4.5, IWV-3415.

7. This valve is stroked manually only. It does not function as a power operated valve during the design basis event and is therefore tested by local manual actuation. Accordingly, there is no acceptance limit for stroke time.

8. This valve is tested when the Containment spray system is tested per the Technical Specifications.

9. Main Steam Isolation Valves 2(3)HV8204 and 2(3)HV8205 shall be part stroke tested quarterly and full stroke tested at cold shutdown intervals. Solenoid pilot valves 2(3)HY8204X1 2(3)HY8204X2, 2(3)HY8205X1 and 2(3)HY8205X2 shall each be exercised semi-annually. Solenoid pilot valves 2(3)HY8204Y1, 2(3)HY8204Y2, 2(3)HY8205Y1 and 2(3)HY8205Y2 shall be exercised at cold shutdowns. ("X1" and "Y1" are train "A" and "X2" and "Y2" are train "B".) This testing is in accordance with NCR 3-2504 and cannot be changed without a revision of this NCR. Also, see Technical Specification Requirement 4.1.6.3.

10. The seat leakage test for this valve will be performed in accordance with 10 CFR 50 (Reference 2.4.1), Appendix J requirements (see Procedure paragraph 6.4.8).

11. Inservice Testing of Unit 2 and Unit 3 Main Steam Dump Valves will commence with completion of design changes identified in NCR G-949.

EXPLANATION OF NOTES (Continued)

12. Inservice Testing of valves S2(3)1301MU027 and S2(3)1301MU034 will commence with completion of facility changes (PFCs) 2-89-6753 for Unit 2 and 3-89-6753 for Unit 3.

13. The nitrogen supply valves to the CCW Surge Tanks are tested in pairs. That is to say, each pair is treated as a single valve for purposes of the seat leak test. These valves are in series and therefore cannot be tested for seat leakage separately.

14. The maximum allowable closure times for valves 2(3)HV-6212, 2(3)HV-6213, 2(3)HV-6218 and 2(3)HV-6219 are protected values and may not be changed without revision to the disposition of Nonconformance Report (NCR) G-852.

15. 2(3)PSV9349 is a pressure relief valve and will be tested at the frequency stated in the Technical Specifications.

16. Not used.

17. This valve is tested by indirect indication. The 10 second time duration is the nominal time required to start the diesel engine. During this time interval while engine is cranking to start, the air start solenoid valves and air relay valves are open. All moving parts of t' se valve are internal to the valve body. No position indicators external to the valve body exists. The only positive means of indication that valve has stroked open during is either by witnessing the operation of the air start motors or witnessing the misting of exhaust air from the air start motors. Valve degradation or malfunction of operation will reduce diesel engine starting speed. These valves were purchased as part of the diesel generator skid and are non-code valves (therefore, no Valve Relief Request is necessary).

18. This check valve is required to undergo a partial stroke test (as a minimum) using flow following disassembly, inspection and reassembly (see the various VRRs).

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UNIT 2
10/16/91
Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Test Organizati(.) (Procedure)	Notes and Valve Relief Requests
** System: Air Conditioning System								
* 2HCV9918, Hydrogen Purge Exhaust Control Valve (Dwg.: 40172B/G-2) Valve Mfg.: Fisher								
2	A	6	BTF/M	C	AT/RR		T(SO23-V-3.13)	10
* 2HCV9945, Hydrogen Purge Unit A-080 Discharge Valve (Dwg.: 40172B/H-5) Valve Mfg.: Fisher								
2	A	6	BTF/M	C	AT/RR		T(SO23-V-3.13)	10
* 2HV9917, Containment Hydrogen Purge Outlet Valve (Dwg.: 40172B/G-3) Valve Mfg.: Fisher								
2	A	6	BTF/MO	C	AT/RR		T(SO23-V-3.13)	6&10
* 2HV9946, Containment Hydrogen Purge Inlet (Dwg.: 40172B/G-4) Valve Mfg.: Fisher								
2	A	6	BTF/MO	C	AT/RR		T(SO23-V-3.13)	6&10
* S21500MU038 (3/4-038-C-396), ILRT Pressurization Connection (Dwg.: 40171B/C-2) Valve Mfg.: Kerotest								
2	A	3/4	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S21500MU039 (3/4-039-C-396), ILRT Pressurization Connection (Dwg.: 40171B/D-1) Valve Mfg.: Kerotest								
2	A	3/4	GL/M	C	AT/RR		T(SO23-V-3.13)	10
** System: Auxiliary Boiler System								
* S21312MU037 (2-037-C-387), Auxiliary Steam Inside Containment Isolation Valve (Dwg.: 40169C/D-4) Valve Mfg.: Vogt								
2	A	2	GA/M	C	AT/RR		T(SO23-V-3.13)	10
* S21312MU038 (2-038-C-387), Auxiliary Steam Outside Containment Isolation Valve (Dwg.: 40169C/E-4) Valve Mfg.: Vogt								
2	A	2	GA/M	C	AT/RR		T(SO23-V-3.13)	10

UNIT 2
10/16/91
Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Auxiliary Feedwater								
* 2HV4705, AFW Control Valve - Steam Generator E088 (Dwg.: 40160A/E-3) Valve Mfg.: WKM								
3	B	6	GL/MO	C	BTC/OP	33.5	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	BTO/OP	35	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 2HV4706, AFW Control Valve - Steam Generator E089 (Dwg.: 40160A/D-3) Valve Mfg.: WKM								
3	B	6	GL/MO	C	BTC/OP	33.5	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	BTO/OP	35	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 2HV4712, AFW Pump 2P504 Discharge to Steam Generators (Dwg.: 40160A/G-3) Valve Mfg.: WKM								
3	B	4	GL/MO	C	BTC/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	BTO/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV4713, AFW Pump 2P141 Discharge to Steam Generators (Dwg.: 40160A/B-3) Valve Mfg.: WKM								
3	B	4	GL/MO	C	BTC/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	BTO/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV4714, AFW Isolation Valve to Steam Generator E088 (Dwg.: 40160A/F-1) Valve Mfg.: Fisher								
2	B	6	GL/EH	C	BTC/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	BTO/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/EH	C	PIT/RR		O(SO23-3-3.30)	3
* 2HV4715, AFW Isolation Valve to Steam Generator E089 (Dwg.: 40160A/D-2) Valve Mfg.: WKM								
2	B	6	GL/MO	C	BTC/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	BTO/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6

UNIT 2
10/16/91
Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV4716, AFW Pump Turbine Trip and Throttle Valve (Dwg.: 40160B/E-3) Valve Mfg.: Gimpel Inc.								
3	B	4	GA/MO	C	BTO/OP	13.5	O(SO23-3-3.30)	3,4&6
3	B	4	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 2HV4730, AFW Isolation Valve to Steam Generator E088 (Dwg.: 40160A/F-2) Valve Mfg.: WKM								
2	B	6	GL/MO	C	BTC/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	BTO/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 2HV4731, AFW Isolation Valve to Steam Generator E089 (Dwg.: 40160A/D-1) Valve Mfg.: Fisher								
2	B	6	GL/EH	C	BTC/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	BTO/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/EH	C	PIT/RR		O(SO23-3-3.30)	3
* 2HV4762, E/H Bypass Valve for AFW Valve 2HV4712 (Dwg.: 40160A/F-3) Valve Mfg.: Control Components								
3	B	4	GL/EH	C	BTC/OP	40	O(SO23-3-3.30)	3
3	B	4	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	
3	B	4	GL/EH	C	PIT/RR		O(SO23-3-3.30)	
* 2HV4763, E/H Bypass Valve for AFW Valve 2HV4713 (Dwg.: 40160A/C-3) Valve Mfg.: Control Components								
3	B	4	GL/EH	C	BTC/OP	40	O(SO23-3-3.30)	3
3	B	4	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	
3	B	4	GL/EH	C	PIT/RR		O(SO23-3-3.30)	
* S21305MU121 (6-121-D-598), AFW Pump 2P140 Supply to Steam Generator E089 (Dwg.: 40160A/D-3) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21305MU126 (6-126-D-598), AFW Pump 2P141 Discharge Check Valve (Dwg.: 40160A/B-4) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21305MU532 (6-532-D-598), AFW Pump 2P504 Discharge Check Valve (Dwg.: 40160A/G-4) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21305MU547 (6-547-D-598), AFW Pump 2P140 Discharge Check Valve (Dwg.: 40160A/E-3) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
** System: Boric Acid Makeup								
* 2FV9253, Makeup Water to Volume Control Tank (Dwg.: 40125B/G-2) Valve Mfg.: ITT								
3	B	3	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	3	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	3	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 2HV9231, Boric Acid Makeup Pump 2P175 Recirculation to Tank T072 (Dwg.: 40125A/D-8) Valve Mfg.: ITT								
3	B	2	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 2HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction (Dwg.: 40125A/B-5) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9236, Boric Acid Makeup Pump 2P174 Recirculation to Tank T071 (Dwg.: 40125A/D-1) Valve Mfg.: ITT								
3	B	2	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 2HV9240, BAMU Tank T071 to Charging Pump Suction Header Control Valve (Dwg.: 40125A/B-4) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9247, BAMU Pump to Charging Pump Suction Control Valve (Dwg.: 40125B/E-5) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* S21218MU033 (3-033-D-675), BAMU Pump 2P175 Discharge Check Valve (Dwg.: 40125B/B-5) Valve Mfg.: Aloyco/Walworth								
3	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S21218MU035 (3-035-D-676), BAMU Pump 2P174 Discharge Check Valve (Dwg.: 40125B/D-5) Valve Mfg.: Aloyco/Walworth								
3	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S21218MU046 (3-046-Y-675), Demineralized Water to Boric Acid Mixing Tee (Dwg.: 40125B/G-3) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTC/OP		T(SO23-V-3.5.4)	
** System: Chemical and Volume Control								
* 2HV9200, Charging Pumps to Regenerative Heat Exchanger E063 (Dwg.: 40123A/D-3) Valve Mfg.: Fisher								
2	A	2	GL/AO	O	AT/RR		T(SO23-V-3.13)	5&10
2	A	2	GL/AO	O	BTC/CS	8	O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	BTO/CS	25	O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	FSTO/CS		O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	5&10
* 2HV9205, Regenerative Heat Exchanger to Letdown Heat Exchanger (Dwg.: 40123A/F-3) Valve Mfg.: Fisher								
2	A	2	GL/AO	O	AT/RR		T(SO23-V-3.13)	3,5&10
2	A	2	GL/AO	O	BTC/CS	4	O(SO23-3-3.31)	3,5&10
2	A	2	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	3,5&10
2	A	2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	3,5&10
* 2LV0227B, VCT Outlet Valve (Dwg.: 40124A/B-5) Valve Mfg.: Target Rock								
2	B	4	GA/MO	O	BTC/CS	11	O(SO23-3-3.31)	5&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2TV9267, Letdown Containment Isolation Valve (Dwg.: 40123A/F-3) Valve Mfg.: Westinghouse, Inc.								
2	A	2	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	2	GA/MO	O	BTC/CS	13	O(SO23-3-3.31)	3,5,6&10
2	A	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* S21208MU015 (4-015-C-675), VCT to Charging Pump Suction Check Valve (Dwg.: 40124A/B-4) Valve Mfg.: Aloyco/Walworth								
2	C	4	CK/SA	O	CVTC/CS		O(SO23-3-3.31.2)	
* S21208MU017 (2-017-C-554), Charging Pump 2P192 Discharge Check Valve (Dwg.: 40124B/C-3) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21208MU067 (2-067-C-554), Charging Pump 2P190 Discharge Check Valve (Dwg.: 40124B/G-2) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21208MU069 (2-069-C-554), Charging Pump 2P191 Discharge Check Valve (Dwg.: 40124B/D-2) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21208MU082 (3-082-C-675), Gravity Feed - BAMU Tanks to Charging Pump 2P190 Suction (Dwg.: 40124B/H-5) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTO/		O(SO23-3-3.31.2)	5
* S21208MU083 (3-083-C-675), BAMU Pumps to Charging Pumps Suction Header (Dwg.: 40124B/F-7) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21208MU122 (2-122-C-554), Charging Pumps Check Valve to Regen Heat Exchanger E063 (Dwg.: 40123A/D-4) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10 VRR-14
2	AC	2	CK/SA	C	CVTC/RR		T(SO23-V-3.13)	10 VRR-14
2	AC	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	10 VRR-14

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* S21208MU130 (2-130-C-334), Contmt Isol - Chg Pump Disch to Aux Spray Regen HX Bypass								
(Dwg.: 40123A/B-2) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	7&10
2	A	2	GL/M	C	BTC/CS		O(SO23-3-3.31)	7&10
2	A	2	GL/M	C	BTO/CS		O(SO23-3-3.31)	7&10
2	A	2	GL/M	C	PIT/RR		O(SO23-3-3.31)	7&10
** System: Chilled Water								
* 2HV9900, Containment Cooling Supply Isolation Valve Penetration 45								
(Dwg.: 40170A/G-4) Valve Mfg.: Fisher								
2	A	8	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	BTF/MO	O	BTC/OP	14	O(SO23-3-3.30)	3,6&10
2	A	8	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV9920, Containment Isolation Valve - Cooling Supply								
(Dwg.: 40170A/G-3) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	12	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9921, Containment Isolation Valve - Cooling Return								
(Dwg.: 40170A/F-3) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	26	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9971, Containment Isolation Valve - Cooling Return, Pen 46								
(Dwg.: 40170A/F-4) Valve Mfg.: Fisher								
2	A	8	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	BTF/MO	O	BTC/OP	13	O(SO23-3-3.30)	3,6&10
2	A	8	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* SA1513MUB30, (1 1/8-830-D-*), Aux Bldg Emerg Chiller E336 Oil Cooler Outlet Check Valve								
(Dwg.: 40179E/G-7) Valve Mfg.:								
3	C	1-1/8	CK/SA	C	CVTO/OP		O(SO23-3-3.20)	

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* SA1513MU835 (1 1/8-835-D-*), Aux Bldg Emerg Chiller E335 Oil Cooler Outlet Check Valve								
(Dwg.: 40180D/G-7) Valve Mfg.:								
3	C	1-1/8	CK/SA	C	CVTO/OP		O(S023-3-3.20)	
** System: Component Cooling Water								
* 2HCV6537, CCW Pump 2P024 Miniflow Block Valve								
(Dwg.: 40127A/F-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(S023-3-3.30)	
* 2HCV6538, CCW Pump 2P025 Miniflow Block Valve								
(Dwg.: 40127A/E-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(S023-3-3.30)	
* 2HCV6539, CCW Pump 2P026 Miniflow Block Valve								
(Dwg.: 40127A/B-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(S023-3-3.30)	
* 2HV6211, Containment Isolation Valve - CCW Non-Critical Loop								
(Dwg.: 40127F/G-3) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(S023-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(S023-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(S023-3-3.31)	3,5,6&10
* 2HV6212, CCW from Heat Exchanger E001A to Non-Critical Loop								
(Dwg.: 40127D/E-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	13	O(S023-3-3.31)	14
3	B	28	BTF/AO	O	FSTC/CS		O(S023-3-3.31)	14
3	B	28	BTF/AO	O	PIT/RR		O(S023-3-3.31)	14
* 2HV6213, Component Cooling Discharge to Non-Critical Loop								
(Dwg.: 40127D/D-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	14	O(S023-3-3.31)	14
3	B	28	BTF/AO	O	FSTC/CS		O(S023-3-3.31)	14
3	B	28	BTF/AO	O	PIT/RR		O(S023-3-3.31)	14

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* 2HV6216, Containment Isolation - CCW Non-Critical Loop Return (Dwg.: 40127F/C-5) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 2HV6218, Component Cooling Water Pump Suction From Non-Critical Loop (Dwg.: 40127A/E-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	16	O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	FSTC/CS		O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	5&14
* 2HV6219, Component Cooling Water Pump Suction From Non-Critical Loop (Dwg.: 40127A/D-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	16	O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	FSTC/CS		O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	5&14
* 2HV6223, Containment Isolation - CCW Non-Critical Loop Supply (Dwg.: 40127F/C-4) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 2HV6236, Containment Isolation - CCW Non-Critical Loop Return (Dwg.: 40127F/C-5) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 2HV6366, Component Cooling Water to Emergency Cooling Unit E-401 (Dwg.: 40172B/C-7) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10

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* 2HV6367, Component Cooling Water to Emergency Cooling Unit E-401 (Dwg.: 40172B/D-7) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6368, Component Cooling Water to Emergency Cooling Unit E-400 (Dwg.: 40172B/E-7) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6369, Component Cooling Water to Emergency Cooling Unit E-400 (Dwg.: 40172B/F-7) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6370, Component Cooling Water to Emergency Cooling Unit E-399 (Dwg.: 40172B/D-2) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6371, Component Cooling Water Ret. from Emerg Cooling Unit E-399 (Dwg.: 40172B/C-2) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6372, Component Cooling Water to Emergency Cooling Unit E-402 (Dwg.: 40172B/F-2) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10

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* 2HV6373, Component Cooling Water to Emergency Cooling Unit E-402 (Dwg.: 40172B/E-2) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV6500, Component Cooling Water from SDCS Heat Exchanger E003 (Dwg.: 40127E/F-4) Valve Mfg.: Fisher								
3	B	18	BTF/AO	C	BTO/CS	8	O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	FSTO/CS		O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	PIT/RR		O(SO23-3-3.31)	3&5
* 2HV6501, Component Cooling Water from SDCS Heat Exchanger E004 (Dwg.: 40127E/C-4) Valve Mfg.: Fisher								
3	B	18	BTF/AO	C	BTO/CS	8	O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	FSTO/CS		O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	PIT/RR		O(SO23-3-3.31)	3&5
* 2PSV6356, CCW Surge Tank T003 Relief Valve (Dwg.: 40127B/H-5) Valve Mfg.: Crosby								
3	C	1	SV/SA	C	RVT/RR		M(SO23-I-8.88)	2
* 2PSV6359, CCW Surge Tank T004 Relief Valve (Dwg.: 40127B/D-5) Valve Mfg.: Crosby								
3	C	1	SV/SA	C	RVT/RR		M(SO23-I-8.88)	2
* S21203MR229, Drain Valve, CCW Pump P026 Drain Line (Dwg.: 40127A/B-5) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7

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UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21203MR232, Drain Valve, CCW Pump P025 Drain Line (Dwg.: 40127A/D-6) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7
* S21203MR233, Drain Valve, CCW Pump P024 Drain Line (Dwg.: 40127A/G-5) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7
* S21203MU101 (28-101-D-725), CCW Pump 2P024 Discharge Check Valve (Dwg.: 40127A/G-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(SO23-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(SO23-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(SO23-3-3.31.2)	
* S21203MU102 (28-102-D-725), CCW Pump 2P026 Discharge Check Valve (Dwg.: 40127A/B-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(SO23-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(SO23-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(SO23-3-3.31.2)	
* S21203MU103 (28-103-D-725), CCW Pump 2P025 Discharge Check Valve (Dwg.: 40127A/D-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(SO23-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(SO23-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(SO23-3-3.31.2)	
* S21203MU264 (1-264-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A (Dwg.: 40127B/H-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S21203MU265 (1-265-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A (Dwg.: 40127B/G-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21203MU266			(1-266-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B					
(Dwg.: 40127B/D-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S21203MU267			(1-267-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B					
(Dwg.: 40127B/D-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S21203MU268			(1-268-D-627), Nuclear Plant Service Water Supply to CCW Loop A					
(Dwg.: 40127B/D-3) Valve Mfg.: Anchor Darling								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	
* S21203MU269			(1-269-D-627), Nuclear Plant Service Water Supply to CCW Loop B					
(Dwg.: 40127B/B-3) Valve Mfg.: Anchor Darling								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	
** System: Condensate and Feedwater								
* 2HV1105, Feedwater Bypass Valve for Steam Generator E089								
(Dwg.: 40156B/B-6) Valve Mfg.: Copes Vulcan, Inc.								
-	B	6	GA/AO	C	BTC/CS	10	O(SO23-3-3.31)	3
-	B	6	GA/AO	C	FSTC/CS		O(SO23-3-3.31)	3
-	B	6	GA/AO	C	PIT/RR		O(SO23-3-3.31)	3
* 2HV1106, Feedwater Bypass Valve for Steam Generator E088								
(Dwg.: 40156B/E-6) Valve Mfg.: Copes Vulcan, Inc.								
-	B	6	GA/AO	C	BTC/CS	10	O(SO23-3-3.31)	3
-	B	6	GA/AO	C	FSTC/CS		O(SO23-3-3.31)	3
-	B	6	GA/AO	C	PIT/RR		O(SO23-3-3.31)	3

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Inservice Testing Program for Valves
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(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV4047, Feedwater Block Valve - Steam Generator E088 (Dwg.: 40156B/F-4) Valve Mfg.: WKM								
-	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
-	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 2HV4048, Feedwater Isolation Valve - Steam Generator E088 (Dwg.: 40156B/F-2) Valve Mfg.: WKM								
2	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	FSTC/CS		O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 2HV4051, Feedwater Block Valve - Steam Generator E089 (Dwg.: 40156B/B-4) Valve Mfg.: WKM								
-	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
-	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 2HV4052, Feedwater Isolation Valve - Steam Generator E089 (Dwg.: 40156B/B-2) Valve Mfg.: WKM								
2	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	FSTC/CS		O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* S21305MU036 (20-036-C-609), Main Feed Check at Steam Generator E089 (Dwg.: 40141A/C-7) Valve Mfg.: Anchor/Darling								
2	C	20	CK/SA	O	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-20
2	C	20	CK/SA	O	CVTO/CS		O(Later)	1&18 VRR-20
* S21305MU124 (6-124-C-599), AFW Check Valve at Steam Generator E089 (Dwg.: 40141A/B-7) Valve Mfg.: Anchor/Darling								
2	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21305MU129 (20-129-C-609), Main Feed Check at Steam Generator E088 (Dwg.: 40141A/F-7) Valve Mfg.: Anchor/Darling								
2	C	20	CK/SA	O	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-20
2	C	20	CK/SA	O	CVTO/CS		O(Later)	1&18 VRR-20
* S21305MU448 (6-448-C-599), AFW Check Valve at Steam Generator E088 (Dwg.: 40141A/F-7) Valve Mfg.: Anchor/Darling								
2	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Containment HVAC (Normal)								
* 2HV9821, Containment Isolation Valve - Minipurge Supply (Dwg.: 40171A/C-6) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9823, Containment Isolation Valve - Minipurge Supply (Dwg.: 40171A/B-4) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9824, Containment Isolation Valve - Minipurge Exhaust (Dwg.: 40171A/E-3) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9825, Containment Isolation Valve - Minipurge Exhaust (Dwg.: 40171A/E-7) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(SO23-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9948, Containment Purge Supply (Dwg.: 40171A/B-6) Valve Mfg.: Fisher								
2	A	42	BTF/AO	C	AT/OP		T(SO23-V-3.13)	3&10
2	A	42	BTF/AO	C	BTC/CS	12	O(SO23-3-3.31)	3&10
2	A	42	BTF/AO	C	FSTC/CS		O(SO23-3-3.31)	3&10
* 2HV9949, Containment Purge Supply (Dwg.: 40171A/D-4) Valve Mfg.: Fisher								
2	A	42	BTF/MO	C	AT/OP		T(SO23-V-3.13)	3,6&10
2	A	42	BTF/MO	C	BTC/CS	12	O(SO23-3-3.31)	3,6&10

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9950, Containment Purge Exhaust (Dwg.: 40171A/C-3) Valve Mfg.: Fisher								
2	A	42	BTF/MO	C	AT/OP		T(SO23-V-3.13)	3,6&10
2	A	42	BTF/MO	C	BTC/CS	12	O(SO23-3-3.31)	3,6&10
* 2HV9951, Containment Purge Exhaust (Dwg.: 40171A/E-6) Valve Mfg.: Fisher								
2	A	42	BTF/AO	C	AT/OP		T(SO23-V-3.13)	3&10
2	A	42	BTF/AO	C	BTC/CS	12	O(SO23-3-3.31)	3&10
2	A	42	BTF/AO	C	FSTC/CS		O(SO23-3-3.31)	3&10
** System: Containment Spray								
* 2HV8150, Isolation Valve - SDCS HX E004 to LPSI Header (Dwg.: 40114B/D-5) Valve Mfg.: Walworth								
2	B	12	GL/MO	C	BTC/CS	90	O(SO23-3-3.31)	6
2	B	12	GL/MO	C	BTO/CS	90	O(SO23-3-3.31)	6
2	B	12	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 2HV8151, Isolation Valve - SDCS HX E003 to LPSI Header (Dwg.: 40114B/F-5) Valve Mfg.: Walworth								
2	B	12	GL/MO	C	BTC/CS	90	O(SO23-3-3.31)	6
2	B	12	GL/MO	C	BTO/CS	90	O(SO23-3-3.31)	6
2	B	12	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 2HV9367, Containment Isolation Valve - Spray Header #1 (Dwg.: 40114B/C-4) Valve Mfg.: Target Rock								
2	A	8	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	8	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV9368, Containment Isolation Valve - Spray Header #2 (Dwg.: 40114B/G-4) Valve Mfg.: Target Rock								
2	A	8	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	8	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10

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Inservice Testing Program for Va es
San Onofre Nuclear Generating Sta ion
(Test Org's: M=Maintenance, O = Operations, = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S21206MU004 (8-004-C-406), Containment Isolation Stop Check Valve - Spray Header #1								
(Dwg.: 40114B/C-3) Valve Mfg.: Anchor/Darling								
2	AC	8	SCK/SA	C	AT/RR		T(SO23-V-3.13)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVPO/RR		T(M.O.)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVTO/RR		M(RMO)	1,5,8,10&18 VRR-13
* S21206MU006 (8-006-C-406), Containment Isolation Stop Check Valve - Spray Header #2								
(Dwg.: 40114B/G-3) Valve Mfg.: Anchor/Darling								
2	AC	8	SCK/SA	C	AT/RR		T(SO23-V-3.13)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVPO/RR		T(M.O.)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVTO/RR		M(RMO)	1,5,8,10&18 VRR-13
* S21206MU010 (2-010-C-329), Pump 2P012 Miniflow Stop Check Valve								
(Dwg.: 40114A/D-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21206MU011 (2-011-C-329), Pump 2P013 Miniflow Stop Check Valve								
(Dwg.: 40114A/H-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21206MU012 (8-012-C-406), Spray Pump 2P012 Discharge Stop Check Valve								
(Dwg.: 40114A/C-3) Valve Mfg.: Anchor/Darling								
2	C	8	SCK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	5
2	C	8	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21206MU014 (8-014-C-406), Spray Pump 2P013 Discharge Stop Check Valve								
(Dwg.: 40114A/G-3) Valve Mfg.: Anchor/Darling								
2	C	8	SCK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	5
2	C	8	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21206MU029 (8-029-C-645), Spray Pump 2P012 Discharge Check Valve to SDCS HX E004								
(Dwg.: 40114A/C-3) Valve Mfg.: Anchor/Darling								
2	C	8	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	5
2	C	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21206MU030 (8-030-C-645), Spray Pump 2P013 Discharge Check Valve to SDCS HX E003								
(Dwg.: 40114A/G-3) Valve Mfg.: Anchor/Darling								
2	C	8	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	5
2	C	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
** System: Diesel Fuel Oil								
* S22421MU039 (2-039-D-627), Diesel Fuel Oil Transfer Pump 2P096 Discharge Check Valve								
(Dwg.: 40116A/C-6) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S2242 (2-048-D-627), Diesel Fuel Oil Transfer Pump 2P093 Discharge Check Valve								
(Dwg.: 40116A/D-7) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S22421MU054 (2-054-D-627), Diesel Fuel Oil Transfer Pump 2P095 Discharge Check Valve								
(Dwg.: 40116A/C-3) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S22421MU063 (2-063-D-627), Diesel Fuel Oil Transfer Pump 2P094 Discharge Check Valve								
(Dwg.: 40116A/D-4) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
** System: Diesel Generator Air Start								
* 2HV5931A, Diesel Generator 2G002, 20 Cyl., Air Start Relay Valve								
(Dwg.: 40110A/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV5931B, Diesel Generator 2G002, 16 Cyl., Air Start Relay Valve (Dwg.: 40110B/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931C, Diesel Generator 2G002, 20 Cyl., Air Start Relay Valve (Dwg.: 40110A/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931D, Diesel Generator 2G002, 16 Cyl., Air Start Relay Valve (Dwg.: 40110B/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931E, Diesel Generator 2G003, 20 Cyl., Air Start Relay Valve (Dwg.: 40110C/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931F, Diesel Generator 2G003, 16 Cyl., Air Start Relay Valve (Dwg.: 40110D/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931G, Diesel Generator 2G003, 20 Cyl., Air Start Relay Valve (Dwg.: 40110C/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HV5931H, Diesel Generator 2G003, 16 Cyl., Air Start Relay Valve (Dwg.: 40110D/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955A1, Air Start Sol. - Diesel Generator 2G002, 20 Cyl., Right Bank (Dwg.: 40110A/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955B1, Air Start Sol. - Diesel Generator 2G002, 16 Cyl., Left Bank (Dwg.: 40110B/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955C1, Air Start Sol. - Diesel Generator 2G002, 20 Cyl., Left Bank (Dwg.: 40110A/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HY5955D1, Air Start Sol. - Diesel Generator 2G002, 16 Cyl., Right Bank (Dwg.: 40110B/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955E2, Air Start Sol. - Diesel Generator 2G003, 20 Cyl., Right Bank (Dwg.: 40110C/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955F2, Air Start Sol. - Diesel Generator 2G003, 16 Cyl., Left Bank (Dwg.: 40110D/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955G2, Air Start Sol. - Diesel Generator 2G003, 20 Cyl., Left Bank (Dwg.: 40110C/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 2HY5955H2, Air Start Sol. - Diesel Generator 2G003, 16 Cyl., Right Bank (Dwg.: 40110D/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
** System: Diesel Generator System								
* S22420MU135 (1-1/2-135-Z-*), Diesel Air Receiver T-338 Air Inlet Check Valve (Dwg.: 40110C/G-3) Valve Mfg.: Later								
	C	1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S22420MU146 (1 1/2-146-Z-*), Diesel Air Receiver T-335 Air Inlet Check Valve (Dwg.: 40110E/H-1) Valve Mfg.: Later								
	C	1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S22420MU160 (1 1/2-160-Z-*), Diesel Air Receiver T-336 Air Inlet Check Valve (Dwg.: 40110E/G-3) Valve Mfg.: Later								
	C	1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S22420MU168 (1 1/2-168-Z-*), Diesel Air Receiver T-337 Air Inlet Check Valve (Dwg.: 40110C/H-1) Valve Mfg.: Later								
	C	1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Fire Protection								
* 2HV5686, Contmt Isolation Valve, Outside - Fire Prot. System Water (Dwg.: 40184B/D-3) Valve Mfg.: WKM								
2	A	4	GA/MO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	4	GA/MO	C	BTC/CS	33	O(SO23-3-3.31)	3&10
2	A	4	GA/MO	C	PIT/RR		O(SO23-3-3.31)	3&10
* SA2301MU061 (4-061-C-681), Containment Isolation Valve - Fire Protection System Water (Dwg.: 40184B/D-4) Valve Mfg.: Anchor/Darling								
2	AC	4	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
** System: Fuel Stor. Pool & Refueling								
* 2LV0227C, RWST To Charging Pump Suction (Dwg.: 40124B/A-7) Valve Mfg.: Target Rock								
2	B	4	GA/MO	C	BTO/CS	11	O(SO23-3-3.31)	5&6
2	B	4	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* S21219MU052 (6-052-C-675), RWFT T006 to Charging Pump Suction Header (Dwg.: 40124B/B-7) Valve Mfg.: Aloyco/Walworth								
2	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21219MU100 (10-100-C-212), Refueling Pool Outlet Inside Containment (Dwg.: 40122A/G-4) Valve Mfg.: Walworth								
2	A	10	GA/M	C	AT/RR		T(SO23-V-3.13)	10
* S21219MU101 (10-101-C-212), Refueling Pool Outlet Outside Containment to Pump 2P014 (Dwg.: 40122A/G-4) Valve Mfg.: Walworth								
2	A	10	GA/M	C	AT/RR		T(SO23-V-3.13)	10
** System: Gas Radwaste								
* 2HV7258, Containment Isolation - Waste Gas to Surge Tank (Dwg.: 40131A/F-3) Valve Mfg.: WKM								
2	A	3	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3	GA/MO	O	BTC/OP	31	O(SO23-3-3.30)	3,6&10
2	A	3	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV7259, Containment Isolation - Safety Injection Tank Vent Header (Dwg.: 40131A/F-2) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GA/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
** System: Liquid Radwaste								
* 2HV7512, RCDT Pump Discharge from Containment to Radwaste (Dwg.: 40131A/B-3) Valve Mfg.: WKM								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3	GL/MO	C	BTC/OP	40	O(SO23-3-3.30)	3,6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV7513, Containment Isolation - RCS Drain to Radwaste (Dwg.: 40131A/B-2) Valve Mfg.: Fisher								
2	A	3	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GL/AO	C	BTC/OP	7	O(SO23-3-3.30)	3&10
2	A	3	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* S21901MU321 (2-321-C-376), Isolation Valve - Coolant Polishing Demin to Quench Tank (Dwg.: 40111C/G-6) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S21901MU573 (2-573-C-611), Check Valve - Coolant Polishing Demin to Quench Tank (Dwg.: 40111C/G-5) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
** System: Nitrogen Gas								
* 2HV5434, Nitrogen to Safety Injection Tanks (Dwg.: 40192C/D-6) Valve Mfg.: Fisher								
2	A	2	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	2	GL/AO	C	BTC/OP	4	O(SO23-3-3.30)	3&10
2	A	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV5437, Nitrogen Supply to Containment (Dwg.: 40192C/F-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	O	AT/RR		T(S023-V-3.13)	3&10
2	A	3/4	GL/AO	O	BTC/OP	2	O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* S22418MU002 (3/4-002-C-611), Nitrogen Supply to Containment (Dwg.: 40192C/E-5) Valve Mfg.: Kerotest								
2	AC	3/4	CK/SA	C	AT/RR		T(S023-V-3.13)	10
* S22418MU108 (2-108-C-627), Nitrogen Supply to Safety Injection Tanks (Dwg.: 40192C/C-6) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(S023-V-3.13)	10
** System: Nuclear Sampling								
* 2HV0500, Post LOCA Hydrogen Monitor (Dwg.: 40172A/C-3) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(S023-V-3.13)	10
* 2HV0501, Post LOCA Hydrogen Monitor (Dwg.: 40172A/D-2) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(S023-V-3.13)	10
* 2HV0502, Post LOCA Hydrogen Monitor (Dwg.: 40172A/B-3) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(S023-V-3.13)	10
* 2HV0503, Post LOCA Hydrogen Monitor (Dwg.: 40172A/B-2) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(S023-V-3.13)	10
* 2HV0508, Containment Isolation - RCS Hot Leg (Dwg.: 40134A/G-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(S023-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	33	O(S023-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(S023-3-3.30)	3,6&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV0509, Containment Isolation - RCS Hot Leg (Dwg.: 40134A/G-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(S023-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	4	O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(S023-3-3.30)	3&10
* 2HV0510, Containment Isolation - Pressurizer Vapor Sample Line (Dwg.: 40134A/E-7, Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(S023-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	24	O(S023-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(S023-3-3.30)	3,6&10
* 2HV0511, Containment Isolation - Pressurizer Vapor Sample Line (Dwg.: 40134A/E-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(S023-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(S023-3-3.30)	3&10
* 2HV0512, Containment Isolation - Pressurizer Surge Line Sample (Dwg.: 40134A/C-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(S023-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	31	O(S023-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(S023-3-3.30)	3,6&10
* 2HV0513, Containment Isolation - Pressurizer Surge Line Sample (Dwg.: 40134A/C-6) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(S023-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(S023-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(S023-3-3.30)	3&10
* 2HV0514, Isolation Valve - Quench Tank to Waste Gas System (Dwg.: 40111C/F-3) Valve Mfg.: WKM								
2	A	3/4	GL/MO	O	AT/RR		T(S023-V-3.13)	3,6&10
2	A	3/4	GL/MO	O	BTC/OP	31	O(S023-3-3.30)	3,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(S023-3-3.30)	3,6&10

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* 2HV0515, Isol. Valve - Quench Tank/RCDT to Waste Gas Sampling System (Dwg.: 40111C/G-2) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	4	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV0516, Isolation Valve - RCDT to Waste Gas Sampling System (Dwg.: 40111C/G-3) Valve Mfg.: WKM								
2	A	3/4	GL/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	O	BTC/OP	25	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV0517, RCS Hot Leg #2 Sample Isolation Valve (Dwg.: 40134A/G-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	29	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 2HV7800, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Dwg.: 40170A/E-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV7801, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Dwg.: 40170A/E-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV7802, Containment Airborne Rad Monitor Train "A" Isol (Pen 30A) (Dwg.: 40170A/D-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10

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* 2HV7803, Containment Airborne Rad Monitor Train "B" Isol (Pen 3A) (Dwg.: 40170A/D-3) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10
* 2HV7805, Containment Isolation - Airborne Rad Monitor Train "B" (Dwg.: 40170A/C-4) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10
* 2HV7806, Containment Isolation - Airborne Rad Monitor Train "B" (Dwg.: 40170A/C-4) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10
* 2HV7810, Containment Airborne Rad Monitor Train "B" Isol (Pen 16C) (Dwg.: 40170A/C-3) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10
* 2HV7811, Containment Airborne Rad Monitor Train "B" Isol (Pen 27C) (Dwg.: 40170A/C-3) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10
* 2HV7816, Contmt Isolation - Airborne Rad Monitor Emergency Sample (Dwg.: 40170A/F-3) Valve Mfg.: Target Rock									
2	A	3/4	GA/SO	O	AT/RR			T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP			O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR			O(SO23-3-3.30)	3&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Nuclear Service Water								
* 2HV7911, Containment Isolation - Nuclear Service Water (Dwg.: 40140B/F-5) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GA/AO	O	CTC/OP	7	O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* S21415MU236 (3-236-C-675), Containment Isolation Check Valve - Nuclear Service Water (Dwg.: 40140B/G-5) Valve Mfg.: Aloyco/Walworth								
2	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
** System: Reactor Coolant								
* 2HV0296A, Reactor Head Vent (Dwg.: 40111C/F-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 2HV0296B, Reactor Head Vent (Dwg.: 40111C/F-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 2HV0297A, Pressurizer Vent Valve (Dwg.: 40111C/E-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV0297B, Pressurizer Vent Valve (Dwg.: 40111C/E-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 2HV0298, Vent to Contmt from Reactor Head/Pressurizer (Dwg.: 40111C/E-3) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 2HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent (Dwg.: 40111C/E-4) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 2HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray (Dwg.: 40123A/C-6) Valve Mfg.: WKM								
1	B	2	GA/MO	C	BTC/CS	17	O(SO23-3-3.31)	5&6
1	B	2	GA/MO	C	BTO/CS	17	O(SO23-3-3.31)	5&6
1	B	2	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9202, Regenerative Heat Exchanger E063 to RCS Loop 2A (Dwg.: 40123A/E-6) Valve Mfg.: WKM								
1	B	2	GA/MO	O	BTC/CS	23	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	BTO/CS	23	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 2HV9203, Regenerative Heat Exchanger E063 to RCS Loop 1A (Dwg.: 40123A/E-6) Valve Mfg.: WKM								
1	B	2	GA/MO	O	BTC/CS	20	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	BTO/CS	20	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6

UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9204, RCS Loop 2B Letdown to Regenerative Heat Exchanger (Dwg.: 40123A/F-6) Valve Mfg.: Fisher								
1	B	2	GA/AO	O	BTC/CS	4	O(SO23-3-3.31)	5
1	B	2	GA/AO	O	FSTC/CS		O(SO23-3-3.31)	5
1	B	2	GA/AO	O	PIT/RR		O(SO23-3-3.31)	5
* 2HV9217, Reactor Coolant System Bleed Off to Volume Control Tank (Dwg.: 40124A/G-3) Valve Mfg.: WKM								
	A	3/4	GL/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	3/4	GL/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 2HV9218, RCS Bleed Off to VCT Isolation Valve Inside Containment (Dwg.: 40124A/F-3) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	O	AT/RR		T(SO23-V-3.13)	3,5&10
2	A	3/4	GL/AO	O	BTC/CS	5	O(SO23-3-3.31)	3,5&10
2	A	3/4	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	3,5&10
2	A	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.31)	3,5&10
* 2PSV0200, Pressurizer Safety Valve (Dwg.: 40111B/G-7) Valve Mfg.: Dresser								
1	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.1)	2
* 2PSV0201, Pressurizer Safety Valve (Dwg.: 40111B/G-5) Valve Mfg.: Dresser								
1	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.1)	2
* 2TV0221, Letdown Isolation Valve (Dwg.: 40123A/F-6) Valve Mfg.: ITT								
1	B	2	GL/AO	O	BTC/CS	4	O(SO23-3-3.31)	5
1	B	2	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	5
1	B	2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	5
* S21201MU019 (2-019-A-554), Auxiliary Spray Check Valve (Dwg.: 40123A/C-7) Valve Mfg.: Kerotest								
1	C	2	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21201MU020 (2-020-A-554), Charging Line Check Valve to RCS Loop 2A (Dwg.: 40123A/E-7) Valve Mfg.: Kerotest								
1	C	2	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21201MU021 (2-021-A-554), Charging Line Check Valve to RCS Loop 1A								
(Dwg.: 40123A/E-7) Valve Mfg.: Kerotest								
1	C	2	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S21201MU129 (2-129-A-554), Auxiliary Spray to RCS from Charging Pumps								
(Dwg.: 40123A/B-3) Valve Mfg.: Kerotest								
1	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
1	AC	2	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	10
* S21201MU200 (14-200-C-645), Pump 2P016 Suction Check Valve								
(Dwg.: 40112B/F-6) Valve Mfg.: Anchor/Darling								
2	C	14	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	
2	C	14	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S21201MU202 (14-202-C-645), Pump 2P015 Suction Check Valve								
(Dwg.: 40112B/G-5) Valve Mfg.: Anchor/Darling								
2	C	14	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	
2	C	14	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
** System: Resp. & Service Air System								
* 2HV5338, Containment Isolation Valve - Instrument Air								
(Dwg.: 40191G/G-6) Valve Mfg.: Fisher								
2	A	1-1/2	GL/AO	O	AT/RR		[illegible]	3&10
2	A	1-1/2	GL/AO	O	BTC/CS	2	O(SO2[illegible])	3&10
2	A	1-1/2	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	3&10
2	A	1-1/2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	3&10
* S22417MU016 (1-1/2-016-C-617), Instrument Air Contmt Isol Check - Inside Containment								
(Dwg.: 40191G/G-6) Valve Mfg.: Kerotest								
2	AC	1-1/2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
* S22423MU017 (2-017-C-627), Containment Isolation Valve - Service Air								
(Dwg.: 40191E/C-5) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
* S22423MU055 (2-055-C-387), Containment Isolation Valve - Service Air								
(Dwg.: 4019[illegible]C-6) Valve Mfg.: Vogt								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10

UNIT 2
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Safety Injection								
* 2HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System (Dwg.: 40112B/C-2) Valve Mfg.: Borg Warner								
2	B	10	GL/MO	C	BTO/CS	80	O(SO23-3-3.31)	6
2	B	10	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 2HV8152, Isolation Valve - SDCS Heat Exchanger E004 Inlet (Dwg.: 40112B/F-2) Valve Mfg.: Walworth								
2	B	12	GA/MO	C	BTC/CS	100	O(SO23-3-3.31)	6
2	B	12	GA/MO	C	BTO/CS	100	O(SO23-3-3.31)	6
2	B	12	GA/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 2HV8153, Isolation Valve - SDCS Heat Exchanger E003 Inlet (Dwg.: 40112B/G-2) Valve Mfg.: Walworth								
2	B	12	GA/MO	C	BTC/CS	100	O(SO23-3-3.31)	6
2	B	12	GA/MO	C	BTO/CS	100	O(SO23-3-3.31)	6
2	B	12	GA/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 2HV8160, Flow Control Valve - SDCS Heat Exchanger Bypass (Dwg.: 40112B/C-3) Valve Mfg.: Fisher								
2	B	10	GL/MO	O	BTC/CS	40	O(SO23-3-3.31)	6
2	B	10	GL/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 2HV8161, Block Valve - SDCS Heat Exchanger Bypass to LPSI (Dwg.: 40112B/C-3) Valve Mfg.: Walworth								
2	B	14	GA/MO	O	BTC/CS	105	O(SO23-3-3.31)	6
2	B	14	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 2HV8162, LPSI Pump 2P015 Miniflow Block Valve (Dwg.: 40112B/H-2) Valve Mfg.: Westinghouse, Inc.								
2	B	2	GA/MO	O	BTC/CS	12	O(SO23-3-3.31)	6
2	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 2HV8163, LPSI Pump 2P016 Miniflow Block Valve (Dwg.: 40112B/E-3) Valve Mfg.: Westinghouse, Inc.								
2	B	2	GA/MO	O	BTC/CS	12	O(SO23-3-3.31)	6
2	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9302, Control Valve - Contmt Emergency Sump to Spray Pump 2P013 (Dwg.: 40112A/B-6) Valve Mfg.: Fisher								
2	B	24	BTF/MO	C	BTO/OP	39.5	O(SO23-3-3.30)	3&6
2	B	24	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9303, Control Valve - Contmt Emergency Sump to Spray Pump 2P012 (Dwg.: 40112A/B-6) Valve Mfg.: Fisher								
2	B	24	BTF/MO	C	BTO/OP	39.5	O(SO23-3-3.30)	3&6
2	B	24	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9304, Control Valve - Containment Emergency Sump Outlet (Dwg.: 40112A/B-3) Valve Mfg.: Fisher								
2	B	24	BTF/MO	O	BTO/OP	39.5	O(SO23-3-3.30)	6
2	B	24	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	6
* 2HV9305, Control Valve - Containment Emergency Sump Outlet (Dwg.: 40112A/B-3) Valve Mfg.: Fisher								
2	B	24	BTF/MO	O	BTO/OP	39.5	O(SO23-3-3.30)	6
2	B	24	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	6
* 2HV9306, Isolation Valve - SI Recirculation to RWST TOO5 (Dwg.: 40114D/B-3) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	30	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9307, Isolation Valve - SI Recirculation to RWST TOO5 (Dwg.: 40114D/B-4) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	30	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9322, Control Valve - LPSI Header to RCS Loop 1A (Dwg.: 40112D/G-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9323, Control Valve - HPSI Header #2 to RCS Loop 1A (Dwg.: 40112C/D-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9324, Control Valve - HPSI Header #1 to RCS Loop 1A (Dwg.: 40112C/D-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9325, Control Valve - LPSI Header to RCS Loop 1B (Dwg.: 40112D/H-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	O	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9326, Control Valve - HPSI Header #2 to RCS Loop 1B (Dwg.: 40112C/C-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9327, Control Valve - HPSI Header #1 to RCS Loop 1B (Dwg.: 40112C/B-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9328, Control Valve - LPSI Header to RCS Loop 2A (Dwg.: 40112D/E-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9329, Control Valve - HPSI Header #2 to RCS Loop 2A (Dwg.: 40112C/B-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9330, Control Valve - HPSI Header #1 to RCS Loop 2A (Dwg.: 40112C/A-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9331, Control Valve - LPSI Header to RCS Loop 2B (Dwg.: 40112D/H-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.31)	3&6

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* 2HV9332, Control Valve - HPSI Header #2 to RCS Loop 2B (Dwg.: 40112C/F-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9333, Control Valve - HPSI Header #1 to RCS Loop 2B (Dwg.: 40112C/F-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9334, Containment Isolation - SI Tank Drain Header to RFWT 2T005 (Dwg.: 40114D/F-7) Valve Mfg.: WKM								
2	A	2	GL/MO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	2	GL/MO	C	BTC/OP	13	O(SO23-3-3.30)	3&10
2	A	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 2HV9336, Isolation Valve SDCS to LPSI Pump Suction (Dwg.: 40112D/C-7) Valve Mfg.: WKM								
2	B	16	GA/MO	OC	BTC/OP	80	O(SO23-3-3.30)	6
2	B	16	GA/MO	OC	BTO/OP	80	O(SO23-3-3.30)	6
2	B	16	GA/MO	OC	PIT/RR		O(SO23-3-3.30)	6
* 2HV9337, Isolation Valve - SDCS to LPSI Pump Suction (Dwg.: 40112D/C-4) Valve Mfg.: WKM								
1	A	16	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	16	GA/MO	OC	BTC/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	BTO/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9339, Isolation Valve - SDCS from RCS Loop 2 (Dwg.: 40112D/C-2) Valve Mfg.: WKM								
1	A	16	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	16	GA/MO	OC	BTC/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	BTO/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9340, Safety Injection Tank T008 Outlet Valve to RCS Loop 1A (Dwg.: 40113A/C-6) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	35	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9345, Safety Injection Tank T008 Vent Valve (Dwg.: 40113A/G-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 2HV9347, Safety Injection Recirc Return to RWST T005 Isolation Valve (Dwg.: 40114D/D-3) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	32	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9348, Safety Injection Recirc Return to RWST T005 Isolation Valve (Dwg.: 40114D/D-4) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	32	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 2HV9350, Safety Injection Tank T009 Outlet Valve to RCS Loop 1B (Dwg.: 40113A/D-2) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	32	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9355, Safety Injection Tank T007 Vent Valve (Dwg.: 40113A/G-2) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 2HV9360, Safety Injection Tank T009 Outlet Valve to RCS Loop 2A (Dwg.: 40113B/C-6) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	32	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9365, Safety Injection Tank T009 Vent Valve (Dwg.: 40113B/G-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9370, Safety Injection Tank T010 Outlet Valve to RCS Loop 2B (Dwg.: 40113B/D-2) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	35	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9375, Safety Injection Tank T009 Vent Valve (Dwg.: 40113B/G-2) Valve Mfg.: Target Rock								
1	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
1	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
1	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 2HV9377, SDCS Bypass to LPSI Suction Isolation Valve (Dwg.: 40112D/B-4) Valve Mfg.: WKM								
1	A	10	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	10	GA/MO	OC	BTC/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	BTO/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9378, SDCS Bypass to LPSI Suction Isolation Valve (Dwg.: 40112D/B-3) Valve Mfg.: WKM								
1	A	10	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	10	GA/MO	OC	BTC/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	BTO/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 2HV9379, SDCS Bypass to LPSI Suction Isolation Valve - Seal (Dwg.: 40112D/B-7) Valve Mfg.: WKM								
2	B	12	GA/MO	OC	BTC/OP	14	O(SO23-3-3.30)	6
2	B	12	GA/MO	OC	BTO/OP	14	O(SO23-3-3.30)	6
2	B	12	GA/MO	OC	PIT/RR		O(SO23-3-3.30)	6
* 2HV9420, Control Valve - HPSI Header #1 to RCS Loop 2 Hot Leg (Dwg.: 40112C/G-3) Valve Mfg.: Target Rock								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	6&10
2	A	3	GL/MO	C	BTO/CS	11	O(SO23-3-3.31)	6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6&10

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV9434, Control Valve - HPSI Header #2 to RCS Loop 1 Hot Leg								
(Dwg.: 40112C/E-3) Valve Mfg.: Target Rock								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	6&10
2	A	3	GL/MO	C	BTO/CS	11	O(SO23-3-3.31)	6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6&10
* 2PSV9349, Shutdown Cooling System Relief Valve From RCS Loop No. 2								
(Dwg.: 40112D/C-5) Valve Mfg.: Crosby								
2	C	8	RV/SA	C	RVT/RR		M(SO23-I-2.34)	15
* S21204MU001 (24-001-C-724), RW Tank 2T005 to Spray Pump 2P012 Suction Header								
(Dwg.: 40112A/D-8) Valve Mfg.: TRW/Mission								
2	C	24	SDCK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTC/RR		M(SO23-I-6.20)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1&18 VRR-02
* S21204MU002 (24-002-C-724), RW Tank 2T00E to Spray Pump 2P013 Suction Header								
(Dwg.: 40112A/D-7) Valve Mfg.: TRW/Mission								
2	C	24	SDCK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTC/RR		M(SO23-I-6.20)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1&18 VRR-02
* S21204MU003 (24-003-C-724), Outlet Check Valve - Containment Emergency Sump								
(Dwg.: 40112A/A-6) Valve Mfg.: TRW/Mission								
2	C	24	SDCK/SA	C	CVPO/RR		T(Later)	1,5&18 VRR-03
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1,5&18 VRR-03
* S21204MU004 (24-004-C-724), Outlet Check Valve - Containment Emergency Sump								
(Dwg.: 40112A/B-6) Valve Mfg.: TRW/Mission								
2	C	24	SDCK/SA	C	CVPO/RR		T(Later)	1,5&18 VRR-03
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1,5&18 VRR-03

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	Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
*	S21204MU006			(10-006-C-675), HPSI Pumps 2P017 and 2P018 Suction Check Valve					
	(Dwg.: 40112A/G-7) Valve Mfg.: Aloyco								
	2	C	10	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	VRR-08
	2	C	10	CK/SA	C	CVTO/RR		O(SO23-3-2.8)	VRR-08
*	S21204MU008			(10-008-C-675), HPSI Pumps 2P018 and 2P019 Suction Check Valve					
	(Dwg.: 40112A/C-7) Valve Mfg.: Aloyco								
	2	C	10	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	VRR-08
	2	C	10	CK/SA	C	CVTO/RR		O(SO23-3-2.8)	VRR-08
*	S21204MU012			(4-012-C-358), HPSI Pump 2P017 Discharge Check Valve					
	(Dwg.: 40112A/G-3) Valve Mfg.: Anchor/Darling								
	2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
*	S21204MU015			(4-015-C-358), HPSI Pump 2P019 Discharge Check Valve					
	(Dwg.: 40112A/C-3) Valve Mfg.: Anchor/Darling								
	2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
*	S21204MU016			(4-016-C-358), HPSI Pump 2P018 Discharge Check Valve					
	(Dwg.: 40112A/E-3) Valve Mfg.: Anchor/Darling								
	2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
*	S21204MU017			(4-017-C-553), HPSI Pumps 2P018 & 2P019 to #2 High Pressure Header					
	(Dwg.: 40112A/C-2) Valve Mfg.: Anchor/Darling								
	2	C	4	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
*	S21204MU018			(3-018-A-551), HPSI Combined Header to RCS Loop 1A Check Valve					
	(Dwg.: 40112C/D-3) Valve Mfg.: Anchor/Darling								
	1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
	1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
*	S21204MU019			(3-019-A-551), HPSI Combined Header to RCS Loop 1B Check Valve					
	(Dwg.: 40112C/C-3) Valve Mfg.: Anchor/Darling								
	1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
	1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21204MU020 (3-020-A-551), HPSI Combined Header to RCS Loop 2A Check Valve								
(Dwg.: 40112C/B-3) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU021 (3-021-A-551), HPSI Combined Header to RCS Loop 2B Check Valve								
(Dwg.: 40112C/F-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU024 (10-024-C-406), LPSI Pump 2P015 Discharge Stop Check Valve								
(Dwg.: 40112B/G-2) Valve Mfg.: Anchor/Darling								
2	C	10	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU025 (10-025-C-406), LPSI Pump 2P016 Discharge Stop Check Valve								
(Dwg.: 40112B/G-3) Valve Mfg.: Anchor/Darling								
2	C	10	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU027 (12-027-A-551), Safety Injection Headers to RCS Loop 1A								
(Dwg.: 40113A/C-5) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	12	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU029 (12-029-A-551), Safety Injection Headers to RCS Loop 1B								
(Dwg.: 40113A/C-4) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	12	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU031 (12-031-A-551), Safety Injection Headers to RCS Loop 2A								
(Dwg.: 40113B/C-5) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	12	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU033 (12-033-A-551), Safety Injection Headers to RCS Loop 2B								
(Dwg.: 40113B/C-3) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	12	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S21204MU034 (2-034-C-329), HPSI 2P017 Miniflow (Dwg.: 40112A/H-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21204MU035 (2-035-C-329), HPSI 2P019 Miniflow (Dwg.: 40112A/D-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21204MU036 (2-036-C-329), HPSI 2P018 Train "A" Miniflow (Dwg.: [illegible]/F-3) Valve Mfg.: Rockwell Edwards								
2	C	[illegible]	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21204MU037 (2-037-C-329), LPSI Pump 2P015 Miniflow Stop Check Valve (Dwg.: 40112B/H-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21204MU040 (12-040-A-551), Safety Injection Tank T008 Outlet Check Valve (Dwg.: 40113A/D-6) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S21204MU041 (12-041-A-551), Safety Injection Tank T007 Outlet Check Valve (Dwg.: 40113A/D-2) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S21204MU042 (12-042-A-551), Safety Injection Tank T009 Outlet Check Valve (Dwg.: 40113B/D-6) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S21204MU043 (12-043-A-551), Safety Injection Tank T010 Outlet Check Valve								
(Dwg.: 40113B/D-2) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S21204MU063 (2-063-C-329), LPSI Pump 2P016 Miniflow Stop Check Valve								
(Dwg.: 40112B/E-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21204MU072 (8-072-A-552), LPSI Check Valve to RCS Loop 1A								
(Dwg.: 40112D/G-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU073 (8-073-A-552), LPSI Check Valve to RCS Loop 1B								
(Dwg.: 40112D/F-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU074 (8-074-A-552), LPSI Check Valve to RCS Loop 2A								
(Dwg.: 40112D/F-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU075 (8-075-A-552), LPSI Check Valve to RCS Loop 2B								
(Dwg.: 40112D/H-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU077 (16-077-C-645), LPSI Pump 2P016 Suction Header Check Valve								
(Dwg.: 40112A/D-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		(SO23-SPT-8)	1 VRR-12
* S21204MU084 (16-084-C-645), LPSI Pump 2P015 Suction Check Valve								
(Dwg.: 40112A/G-8) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/O		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/		T(SO23-SPT-8)	1 VRR-12

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* S21204MU087 (16-087-C-675), Spray Pump 2P013 Suction Check Valve (Dwg.: 40114A/G-6) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU088 (16-088-C-675), Spray Pump 2P012 Suction Check Valve (Dwg.: 40114A/C-6) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU099 (2-099-C-334), Containment Isolation, SI Tank to Drain Header to RFWT 2T005 (Dwg.: 40114D/F-6) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S21204MU104 (2-104-C-329), HPSI 2P018 Train "B" Miniflow (Dwg.: 40112A/E-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-[illegible].5.4)	
* S21204MU152 (3-152-A-551), To #2 HPSI Header (Dwg.: 40111A/F-5) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S21204MU155 (3-155-C-551), HPSI Header #1 to RCS Loop 2 Hot Leg (Dwg.: 40112C/F-7) Valve Mfg.: Anchor/Darling								
2	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU156 (3-156-A-551), HPSI Header #1 to RCS Loop 2 Hot Leg Inlet Check Valve (Dwg.: 40112D/B-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S21204MU157 (3-157-A-550), HPSI Header #2 to RCS Loop 1 Hot Leg (Dwg.: 40112C/E-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	5&10
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5&10
* S21204MU158 (3-158-A-550), HPSI Header #1 to RCS Loop 2 Hot Leg (Dwg.: 40112C/G-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	5&10
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5&10

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21204MU199 (16-199-C-645), LPSI Pump 2P016 Suction Header Check Valve (Dwg.: 40112A/D-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12
* S21204MU201 (16-201-C-645), LPSI Pump 2P015 Suction Header Check Valve (Dwg.: 40112A/G-8) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12
** System: Salt Water Cooling								
* 2HV6200, Salt Water Cooling System Pump 2P112 Discharge Valve (Dwg.: 40126A/G-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 2HV6201, Salt Water Cooling System Pump 2P113 Discharge Valve (Dwg.: 40126A/D-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 2HV6202, Salt Water Cooling System Pump 2P307 Discharge Valve (Dwg.: 40126B/G-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 2HV6203, Salt Water Cooling System Pump 2P114 Discharge Valve (Dwg.: 40126B/E-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 2HV6494, SWCS from CCW Heat Exchanger E002B to Overflow at Seawall (Dwg.: 40127C/D-3) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP		O(SO23-3-3.30)	6&7
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6&7

UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV6495, Salt Water from CCW Heat Exchanger E002B (Dwg.: 40127C/E-2) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP	75	O(SO23-3-3.30)	6
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6
* 2HV6496, SWCS from CCW Heat Exchanger E001A to Overflow at Seawall (Dwg.: 40127C/C-3) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP		O(SO23-3-3.30)	6&7
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6&7
* 2HV6497, Salt Water from CCW Heat Exchanger E001A (Dwg.: 40127C/B-2) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP	75	O(SO23-3-3.30)	6
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6
* S21413MU009 (30-009-D-722), SWCS Pump 2P112 Discharge Check Valve (Dwg.: 40126A/G-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU010 (30-010-D-722), SWCS Pump 2P113 Discharge Check Valve (Dwg.: 40126A/D-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU011 (30-011-D-722), SWCS Pump 2P307 Discharge Check Valve (Dwg.: 40126B/G-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU012 (30-012-D-722), SWCS Pump 2P114 Discharge Check Valve (Dwg.: 40126B/E-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU013 (1-013-D-691), SWCS Pump 2P112 Recirculation to Cyclone Separator (Dwg.: 40126A/F-4) Valve Mfg.: Contromatics								
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Test Organization (Procedure)	Notes and Valve Relief Request.
* S21413MU016			(1-016-D-691), SWCS Pump 2P113 Recirculation to Cyclone Separator					
(Dwg.: 40126A/D-4)			Valve Mfg.: Controlmatics					
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU021			(1-021-D-691), SWCS Pump 2P307 Recirculation to Cyclone Separator					
(Dwg.: 40126B/F-4)			Valve Mfg.: Controlmatics					
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU024			(1-024-D-691), SWCS Pump 2P114 Recirculation to Cyclone Separator					
(Dwg.: 40126B/D-4)			Valve Mfg.: Controlmatics					
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S21413MU047			(1-047-D-691), Check Valve Service Water Supply to Salt Water Pump 2P112					
(Dwg.: 40126A/G-7)			Valve Mfg.:					
3	C	1	CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
* S21413MU048			(1-048-D-691), Check Valve Service Water Supply to Salt Water Pump 2P113					
(Dwg.: 40126A/D-7)			Valve Mfg.:					
3	C	1	CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
* S21413MU049			(1-049-D-691), Check Valve Service Water Supply to Salt Water Pump 2P307					
(Dwg.: 40126B/G-7)			Valve Mfg.:					
3	C	1	CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
* S21413MU050			(1-049-D-691), Check Valve Service Water Supply to Salt Water Pump 2P114					
(Dwg.: 40126B/D-7)			Valve Mfg.:					
3	at	1	CK/SA	C	CVTC/OP		T(SO23-SPT-7)	

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Steam								
* 2HV4053, Blowdown Isolation Valve - Steam Generator E089 (Dwg.: 40141A/C-2) Valve Mfg.: Fisher								
2	B	6	GL/AO	O	BTC/OP	9	O(SO23-3-3.30)	3
2	B	6	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 2HV4054, Blowdown Isolation Valve - Steam Generator E080 (Dwg.: 40141A/F-2) Valve Mfg.: Fisher								
2	B	6	GL/AO	O	BTC/OP	9	O(SO23-3-3.30)	3
2	B	6	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 2HV4057, Sample Isolation Valve - Steam Generator E089 (Dwg.: 40141A/B-2) Valve Mfg.: Fisher								
2	B	3/4	GL/AO	O	BTC/OP	5	O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 2HV4058, Sample Isolation Valve - Steam Generator E088 (Dwg.: 40141A/F-2) Valve Mfg.: Fisher								
2	B	3/4	GL/AO	O	BTC/OP	5	O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 2HV8200, Steam from Steam Generator E089 to AFW Pump 2P140 (Dwg.: 40141C/E-3) Valve Mfg.: Fisher								
2	B	4	GL/AO	OC	BTO/OP	4	O(SO23-3-3.30)	
2	B	4	GL/AO	OC	FSTO/OP		O(SO23-3-3.30)	
2	B	4	GL/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 2HV8201, Steam from Steam Generator E088 to AFW Pump 2P140 (Dwg.: 40141D/E-3) Valve Mfg.: Fisher								
2	B	4	GL/AO	OC	BTO/OP	4	O(SO23-3-3.30)	
2	B	4	GL/AO	OC	FSTO/OP		O(SO23-3-3.30)	
2	B	4	GL/AO	OC	PIT/RR		O(SO23-3-3.30)	

UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2HV8204, Steam Generator E089 Main Steam Isolation Valve (Dwg.: 40141C/B-2) Valve Mfg.: WKM								
2	B	40	GA/HY	O	BTC/CS	8	O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	BTPC/OP		O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	FSTC/CS		O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	PIT/RR		O(SO2-3-3.17)	3&9
* 2HV8205, Steam Generator E088 Main Steam Isolation Valve (Dwg.: 40141D/B-3) Valve Mfg.: WKM								
2	B	40	GA/HY	O	BTC/CS	8	O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	BTPC/OP		O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	FSTC/CS		O(SO2-3-3.17)	3&9
2	B	40	GA/HY	O	PIT/RR		O(SO2-3-3.17)	3&9
* 2HV8419, Main Steam Dump to Atmosphere (Dwg.: 40141D/E-6) Valve Mfg.: Contr Comp I								
2	B	8	AV/AO	C	BTC/CS	15	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTO/CS	60	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTPO/OP		O(SO23-3-2.18.1)	3&11 VRR-25
2	B	8	AV/AO	C	FSTC/CS		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	PIT/RR		O(SO23-3-3.31)	3&11 VRR-25
* 2HV8421, Main Steam Dump to Atmosphere (Dwg.: 40141C/F-6) Valve Mfg.: Contr Comp I								
2	B	8	AV/AO	C	BTC/CS	15	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTO/CS	60	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTPO/OP		O(SO23-3-2.18.1)	3&11 VRR-25
2	B	8	AV/AO	C	FSTC/CS		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	PIT/RR		O(SO23-3-3.31)	3&11 VRR-25
* 2PSV8401, Main Steam Relief Valve (Dwg.: 40141D/G-7) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8402, Main Steam Relief Valve (Dwg.: 40141D/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8403, Main Steam Relief Valve (Dwg.: 40141D/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2PSV8404, Main Steam Relief Valve (Dwg.: 40141D/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8405, Main Steam Relief Valve (Dwg.: 40141D/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8406, Main Steam Relief Valve (Dwg.: 40141D/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8407, Main Steam Relief Valve (Dwg.: 40141D/F-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8408, Main Steam Relief Valve (Dwg.: 40141D/F-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8409, Main Steam Relief Valve (Dwg.: 40141D/G-3) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8410, Main Steam Relief Valve (Dwg.: 40141C/G-7) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8411, Main Steam Relief Valve (Dwg.: 40141C/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8412, Main Steam Relief Valve (Dwg.: 40141C/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8413, Main Steam Relief Valve (Dwg.: 40141C/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2

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Inservice Testing Program for Valves
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 2PSV8414, Main Steam Relief Valve (Dwg.: 40141C/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8415, Main Steam Relief Valve (Dwg.: 40141C/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8416, Main Steam Relief Valve (Dwg.: 40141C/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8417, Main Steam Relief Valve (Dwg.: 40141C/G-3) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 2PSV8418, Main Steam Relief Valve (Dwg.: 40141C/G-3) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* S21301MU003 (4-003-D-620), Steam Supply - S/G E088 to AFP Turbine K007 Check Valve (Dwg.: 40141C/F-1) Valve Mfg.: Anchor/Darling								
3	C	4	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-18
3	C	4	CK/SA	C	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-18
3	C	4	CK/SA	C	CVTO/CS		T(SO23-V-3.5.4)	1&18 VRR-18
* S21301MU005 (4-005-D-620), Steam Supply - S/G E089 to AFP Turbine K007 Check Valve (Dwg.: 40141C/E-2) Valve Mfg.: Anchor/Darling								
3	C	4	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-18
3	C	4	CK/SA	C	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-18
3	C	4	CK/SA	C	CVTO/CS		T(SO23-V-3.5.4)	1&18 VRR-18
* S21301MU027 (3/4-027-P-635), Instrument Air Supply Check Valve for 2HV8419 (Dwg.: 40141D/D-6) Valve Mfg.: Anchor/Darling								
2	AC	3/4	CK/SA	C	AT/RR		O(SO23-3-2.18.1)	12
2	AC	3/4	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	12

UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S21301MU034 (3/4-034-P-636), Instrument Air Supply Check Valve for 2HV8421								
(Dwg.: 40141C/E-5) Valve Mfg.: Anchor/Darling								
2	AC	3/4	CK/SA	C	AT/RR		O(SO23-3-2.18.1)	12
2	AC	3/4	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	12
** System: Sumps and Drains								
* 2HV8803, Containment Sump to Radwaste Sump								
(Dwg.: 40117A/E-2) Valve Mfg.: WKM								
2	A	3	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	3	GA/MO	O	BTC/OP	40	O(SO23-3-3.30)	3,5,6&10
2	A	3	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,5,6&10
* 2HV8804, Containment Sump to Radwaste Sump Isolation Valve								
(Dwg.: 40117A/E-2) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(SO23-V-3.13)	3,5&10
2	A	3	GA/AO	O	BTC/OP	5	O(SO23-3-3.30)	3,5&10
2	A	3	GA/AO	O	FSTC/OP		O(SO23-3-3.30)	3,5&10
2	A	3	GA/AO	O	PIT/RR		O(SO23-3-3.30)	3,5&10

TCN

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Auxiliary Feedwater

* S21305MU121 (6-121-D-598), AFW Pump 2P140 Supply to Steam Generator E089

Exercising this valve while the plant is at power would result in placing unnecessary thermal stresses on the feedwater piping, which could result in premature failure of this piping.

* S21305MU126 (6-126-D-598), AFW Pump 2P141 Discharge Check Valve
Same as S21305MU121.

* S21305MU532 (6-532-D-598), AFW Pump 2P504 Discharge Check Valve
Same as S21305MU121.

* S21305MU547 (6-547-D-598), AFW Pump 2P140 Discharge Check Valve
Same as S21305MU121.

** System: Boric Acid Makeup

* 2HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction
Opening this valve would result in injecting highly concentrated boric acid into the reactor coolant system, causing plant shutdown.

* 2HV9240, BAMU Tank T071 to Charging Pump Suction Header Control Valve
Same as HV-9235.

* 2HV9247, BAMU Pump to Charging Pump Suction Control Valve
Same as HV-9235.

* S21218MU033 (3-033-D-675), BAMU Pump 2P175 Discharge Check Valve
Full stroke exercising of this valve during plant power operation would result in over-boration of the reactor coolant system and plant shutdown.

* S21218MU035 (3-035-D-676), BAMU Pump 2P174 Discharge Check Valve
Same as S21218MU033.

** System: Chemical and Volume Control

* 2HV9200, Charging Pumps to Regenerative Heat Exchanger E063
Exercising while the plant is at power would isolate normal charging to the RCS. This would result in a non-compliance with Technical Specification 3.1.2.c, which requires two flow paths for boration during power operation.

* 2HV9205, Regenerative Heat Exchanger to Letdown Heat Exchanger
Exercising this valve during power operation would result in unnecessary thermal stress transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 2LV0227B, VCT Outlet Valve
Closing this valve requires shifting charging pump suction and injecting highly concentrated boric acid into the RCS, causing plant shutdown.

* 2HV9267, Letdown Containment Isolation Valve
Same as HV-9205.

* S21208MU015 (4-015-C-675), VCT to Charging Pump Suction Check Valve
Same as LV-0227B.

* S21208MU082 (3-082-C-675), Gravity Feed - BAMU Tanks to Charging Pump 2P190 Suction
Same as HV9235.

* S21208MU083 (3-083-C-675), BAMU Pumps to Charging Pumps Suction Header
Same as HV9235.

* S21208MU130 (2-130-C-334), Contmt Isol - Chg Pump Disch to Aux Spray Regen HX Bypass
Exercising this valve would result in unnecessary thermal transients and stress on the pressurizer spray nozzle.

** System: Component Cooling Water

* 2HV6211, Containment Isolation Valve - CCW Non-Critical Loop
Exercising this valve during operation would secure or direct cooling water flow from RCP seals, which could result in seal damage and plant shutdown.

* 2HV6212, CCW from Heat Exchanger E001A to Non-Critical Loop
Same as HV-6211.

* 2HV6213, Component Cooling Discharge to Non-Critical Loop
Same as HV-6211.

* 2HV6216, Containment Isolation - CCW Non-Critical Loop Return
Same as HV-6211.

* 2HV6218, Component Cooling Water Pump Suction From Non-Critical Loop
Same as HV-6211.

* 2HV6219, Component Cooling Water Pump Suction From Non-Critical Loop
Same as HV-6211.

* 2HV6223, Containment Isolation - CCW Non-Critical Loop Supply
Same as HV-6211.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 2HV6236, Containment Isolation - CCW Non-Critical Loop Return
Same as HV-6211.

* 2HV6500, Component Cooling Water from SDCS Heat Exchanger E003
Same as HV-6211.

* 2HV6501, Component Cooling Water from SDCS Heat Exchanger E004
Same as HV-6211.

* S21203MU101 (28-101-D-725), CCW Pump 2P024 Discharge Check Valve
Full stroke exercising of this valve during power operation would require diverting CCW from the RCP seals, which could result in seal damage and plant shutdown.

* S21203MU102 (28-102-D-725), CCW Pump 2P026 Discharge Check Valve
Same as S21203MU101.

* S21203MU103 (28-103-D-725), CCW Pump 2P025 Discharge Check Valve
Same as S21203MU101.

* S21203MU264 (1-264-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A
Stroke Test requires placing the affected CCW loop out of service.

* S21203MU265 (1-265-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A
Same as S21203MU264.

* S21203MU266 (1-266-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B
Same as S21203MU264.

* S21203MU267 (1-267-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B
Same as S21203MU264.

* S21203MU268 (1-268-D-627), Nuclear Plant Service Water Supply to CCW Loop A
Same as S21203MU264.

* S21203MU269 (1-269-D-627), Nuclear Plant Service Water Supply to CCW Loop B
Same as S21203MU264.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Condensate and Feedwater

* 2HV1105, Feedwater Bypass Valve for Steam Generator E089
This valve cannot be full stroke exercised during power operation as this would disturb steam generator level control, which could result in plant shutdown.

* 2HV1106, Feedwater Bypass Valve for Steam Generator E088
Same as HV-1105.

* 2HV4047, Feedwater Block Valve - Steam Generator E088
Full stroke exercising this valve during power operation would result in loss of feedwater flow to the steam generator, which could result in a plant shutdown.

* 2HV4048, Feedwater Isolation Valve - Steam Generator E088
Same as HV-4047.

* 2HV4051, Feedwater Block Valve - Steam Generator E089
Same as HV-4047.

* 2HV4052, Feedwater Isolation Valve - Steam Generator E089
Same as HV-4047.

* S21305MU036 (20-036-C-609), Main Feed Check at Steam Generator E089
This valve cannot be stroked during any mode in which main feed must remain uninterrupted. It therefore can only be stroked open when main feed is initiated following a plant shutdown.

* S21305MU124 (6-124-C-599), AFW Check Valve at Steam Generator E089
Exercising this valve while the plant is at power would result in placing unnecessary thermal stresses on the feedwater piping, which could result in premature failure of this piping.

* S21305MU129 (20-129-C-609), Main Feed Check at Steam Generator E088
This valve cannot be stroked during any mode in which main feed must remain uninterrupted. It therefore can only be stroked open when main feed is initiated following a plant shutdown.

* S21305MU448 (6-448-C-599), AFW Check Valve at Steam Generator E088
Same as S21305MU124.

** System: Containment HVAC (Normal)

* 2HV9948, Containment Purge Supply
See Valve Relief Request No. 19. This valve is passive except in Modes 5 and 6, at which time it is tested. In addition, exercising this valve during plant power operation would result in non-compliance with the Technical Specifications.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 2HV9949, Containment Purge Supply
Same as HV-9948.

* 2HV9950, Containment Purge Exhaust
Same as HV-9948.

* 2HV9951, Containment Purge Exhaust
Same as HV-9948.

** System: Containment Spray

* 2HV8150, Isolation Valve - SDCS HX E004 to LPSI Header
Applying power or opening this valve while the plant is at power would result in non-compliance with the Technical Specifications. Opening this valve could defeat both trains of LPSI.

* 2HV8151, Isolation Valve - SDCS HX E003 to LPSI Header
Same as HV-8150.

* S21206MU004 (8-004-C-406), Containment Isolation Stop Check Valve - Spray Header #1
Exercising this valve with flow during operation or cold shutdown would result in a spraydown of the containment building.

* S21206MU006 (8-006-C-406), Containment Isolation Stop Check Valve - Spray Header #2
Same as S21206MU004.

* S21206MU012 (8-012-C-406), Spray Pump 2P012 Discharge Stop Check Valve
Full stroke exercising of this check valve while the plant is at power would require disabling both trains of LPSI.

* S21206MU014 (8-014-C-406), Spray Pump 2P013 Discharge Stop Check Valve
Same as S21206MU012.

* S21206MU029 (8-029-C-645), Spray Pump 2P012 Discharge Check Valve to SDCS HX E004
Same as S21206MU012.

* S21206MU030 (8-030-C-645), Spray Pump 2P013 Discharge Check Valve to SDCS HX E003
Same as S21206MU012.

** System: Fire Protection

* 2HV5686, Contmt Isolation Valve, Outside - Fire Prot. System Water
Exercising this valve during plant power operation will activate the Fire Protection System in the Unit 2 Containment building.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Fuel Stor. Pool & Refueling

* 2LV0227C, RWST To Charging Pump Suction
Opening this valve would result in injecting highly concentrated boric acid into the reactor coolant system, causing plant shutdown.

* S21219MU052 (6-052-C-675), RWFT T006 to Charging Pump Suction Header
Same as LV-0227C.

** System: Reactor Coolant

* 2HV0296A, Reactor Head Vent
This valve is part of the Reactor Coolant System Boundary Isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 2HV0296B, Reactor Head Vent
This valve is part of the Reactor Coolant system Boundary Isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 2HV0297A, Pressurizer Vent Valve
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 2HV0297B, Pressurizer Vent Valve
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 2HV0298, Vent to Contmt from Reactor Head/Pressurizer
This valve is not considered accessible during power operation. Further, power is normally removed from the solenoid.

* 2HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent
This valve is normally inaccessible during power operation. Further, power is normally removed from the solenoid.

* 2HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray
Exercising would result in unnecessary thermal transients and stress on the pressurizer spray nozzle.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 2HV9202, Regenerative Heat Exchanger E063 to RCS Loop 2A
This valve must remain open during power operation in order to ensure consistency with assumptions made regarding system flow to the RCS cold legs in the accident analysis and to comply with the intent of LCO 3.5.2.

* 2HV9203, Regenerative Heat Exchanger E063 to RCS Loop 1A
Same as HV-9202.

* 2HV9204, RCS Loop 2B Letdown to Regenerative Heat Exchanger
Exercising this valve during power operation would result in unnecessary thermal stress transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

* 2HV9217, Reactor Coolant System Bleed Off to Volume Control Tank
Exercising this valve could result in Reactor Coolant Pump seal failure and subsequent reactor shutdown.

* 2HV9218, RCS Bleed Off to VCT Isolation Valve Inside Containment
Same as HV-9217.

* 2TV0221, Letdown Isolation Valve
Same as HV-9204.

* S21201MU019 (2-019-A-554), Auxiliary Spray Check Valve
Same as HV-9201.

* S21201MU020 (2-020-A-554), Charging Line Check Valve to RCS Loop 2A
This valve cannot be tested without closing HV-9203 (discussed elsewhere in this table).

* S21201MU021 (2-021-A-554), Charging Line Check Valve to RCS Loop 1A
This valve cannot be tested without closing HV-9202 (discussed elsewhere in this table).

* S21201MU129 (2-129-A-554), Auxiliary Spray to RCS from Charging Pumps
Same as HV-9201.

* S21201MU200 (14-200-C-645), Pump 2P016 Suction Check Valve
This valve can only be exercised when plant is on shutdown cooling.

* S21201MU202 (14-202-C-645), Pump 2P015 Suction Check Valve
Same as S21204MU200.

** System: Resp. & Service Air System

* 2HV5388, Containment Isolation Valve - Instrument Air
Exercising this valve during plant power operation isolates instrument air to the Containment and could result in a plant shutdown.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Safety Injection

* 2HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System
Full stroke testing of this valve during power operation would result in non-compliance with Technical Specification 3/4.5.2, which requires this valve to be closed with power to the valve operator removed.

* 2HV8152, Isolation Valve - SDCS Heat Exchanger E004 Inlet
Same as HV-0396.

* 2HV8153, Isolation Valve - SDCS Heat Exchanger E003 Inlet
Same as HV-0396.

* 2HV8160, Flow Control Valve - SDCS Heat Exchanger Bypass
Full stroke exercising of this valve during power operation would result in non-compliance with Technical Specification 3/4.5.2, which requires this valve to be open with power removed.

* 2HV8161, Block Valve - SDCS Heat Exchanger Bypass to LPSI
Same as HV-8160.

* 2HV8162, LPSI Pump 2P015 Miniflow Block Valve
Same as HV-8160.

* 2HV8163, LPSI Pump 2P016 Miniflow Block Valve
Same as HV-8160.

* 2HV9337, Isolation Valve - SDCS to LPSI Pump Suction
This valve is required by Technical Specification 3/4.5.2 to be interlocked to prevent opening whenever reactor coolant system pressure exceeds 376 PSIA.

* 2HV9339, Isolation Valve - SDCS from RCS Loop 2
Same as HV-9337.

* 2HV9340, Safety Injection Tank T008 Outlet Valve to RCS Loop 1A
Restoring power to this valve or opening this valve while the plant is at power would result in non-compliance with the Technical Specifications.

* 2HV9345, Safety Injection Tank T008 Vent Valve
During power operation, Technical Specifications require power to be locked out for this valve. This prevents inadvertent pressurization of the SIT.

* 2HV9350, Safety Injection Tank T009 Outlet Valve to RCS Loop 1B
Same as HV-9340.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 2HV9355, Safety Injection Tank T007 Vent Valve
Same as HV-9345.

* 2HV9360, Safety Injection Tank T009 Outlet Valve to RCS Loop 2A
Same as HV-9340.

* 2HV9365, Safety Injection Tank T009 Vent Valve
Same as HV-9345.

* 2HV9370, Safety Injection Tank T010 Outlet Valve to RCS Loop 2B
Same as HV-9340.

* 2HV9375, Safety Injection Tank T009 Vent Valve
Same as HV-9345.

* 2HV9377, SDCS Bypass to LPSI Suction Isolation Valve
This valve is required by Technical Specification 3/4.5.2 to be interlocked to prevent opening whenever reactor coolant system pressure exceeds 376 psia.

* 2HV9378, SDCS Bypass to LPSI Suction Isolation Valve
Same as HV-9377.

* 2HV9420, Control Valve - HPSI Header #1 to RCS Loop 2 Hot Leg
Same as HV-0396.

* 2HV9434, Control Valve - HPSI Header #2 to RCS Loop 1 Hot Leg
Same as HV-0396.

* S21204MU012 (4-012-C-358), HPSI Pump 2P017 Discharge Check Valve
This valve cannot be exercised while the plant is at power because the HPSI pump cannot overcome RCS Pressure. To exercise disc to fully open position requires 200 GPM.

* S21204MU015 (4-015-C-358), HPSI Pump 2P019 Discharge Check Valve
Same as S21204MU012.

* S21204MU016 (4-016-C-358), HPSI Pump 2P018 Discharge Check Valve
Same as S21204MU012.

* S21204MU017 (4-017-C-553), HPSI Pumps 2P018 & 2P019 to #2 High Pressure Header
Same as S21204MU012.

* S21204MU018 (3-018-A-551), HPSI Combined Header to RCS Loop 1A Check Valve
Exercising this valve while the plant is at power would result in non-compliance with Technical Specification 3/4.5.2.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* S21204MU019 (3-019-A-551), HPSI Combined Header to RCS Loop 1B Check Valve
Same as S21204MU018.

* S21204MU020 (3-020-A-551), HPSI Combined Header to RCS Loop 2A Check Valve
Same as S21204MU018.

* S21204MU021 (3-021-A-551), HPSI Combined Header to RCS Loop 2B Check Valve
Same as S21204MU018.

* S21204MU024 (10-024-C-406), LPSI Pump 2P015 Discharge Stop Check Valve
While the plant is at power, LPSI pumps cannot overcome RCS pressure. Additionally, aligning the system discharge to the RWST would defeat both trains of LPSI.

* S21204MU025 (10-025-C-406), LPSI Pump 2P016 Discharge Stop Check Valve
Same as S21204MU024.

* S21204MU027 (12-027-A-551), Safety Injection Headers to RCS Loop 1A
During power operation there is no full flow path available to stroke test this valve. LPSI or HPSI pumps cannot overcome the RCS pressure. Requires 2000 GPM for full Stroke.

* S21204MU029 (12-029-A-551), Safety Injection Headers to RCS Loop 1B
Same as S21204MU027.

* S21204MU031 (12-031-A-551), Safety Injection Headers to RCS Loop 2A
Same as S21204MU027.

* S21204MU033 (12-033-A-551), Safety Injection Headers to RCS Loop 2B
Same as S21204MU027.

* S21204MU040 (12-040-A-551), Safety Injection Tank T008 Outlet Check Valve
Opening this valve during power operation is not possible against normal RCS operating pressure. A partial stroke test is the only test possible during Cold shutdown due to system configuration. See Valve Relief Request Number 11.

* S21204MU041 (12-041-A-551), Safety Injection Tank T007 Outlet Check Valve
Same as S21204MU040.

* S21204MU042 (12-042-A-551), Safety Injection Tank T009 Outlet Check Valve
Same as S21204MU040.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* S21204MU043 (12-043-A-551), Safety Injection Tank T010 Outlet Check Valve
Same as S21204MU040.

* S21204MU072 (8-072-A-552), LPSI Check Valve to RCS Loop 1A
There is no flow path to exercise this valve during power operation. LPSI pumps cannot overcome RCS Pressure while the plant is at power.

* S21204MU073 (8-073-A-552), LPSI Check Valve to RCS Loop 1B
Same as S21204MU072.

* S21204MU074 (8-074-A-552), LPSI Check Valve to RCS Loop 2A
Same as S21204MU072.

* S21204MU075 (8-075-A-552), LPSI Check Valve to RCS Loop 2B
Same as S21204MU072.

* S21204MU087 (16-087-C-675), Spray Pump 2P013 Suction Check Valve
Same as S21204MU012.

* S21204MU088 (16-088-C-675), Spray Pump 2P012 Suction Check Valve
Same as S21204MU012.

* S21204MU152 (3-152-A-551), To #2 HPSI Header
Valve cannot be stroked at power because the HPSI pumps cannot overcome RCS Pressure. Additionally, opening the HPSI Header Isolation valve during power operation would result in non-compliance with Technical Specification 3/4.5.2.

* S21204MU155 (3-155-C-551), HPSI Header #1 to RCS Loop 2 Hot Leg
Full or partial stroke exercising of this valve while the plant is at power would result in non-compliance with Technical Specification 3/4.5.2. In addition, while the plant is at power, HPSI pumps cannot overcome RCS pressure.

* S21204MU156 (3-156-A-551), HPSI Header #1 to RCS Loop 2 Hot Leg Inlet Check Valve
Same as S21204MU155.

* S21204MU157 (3-157-A-550), HPSI Header #2 to RCS Loop 1 Hot Leg
Same as S21204MU155.

* S21204MU158 (3-158-A-550), HPSI Header #1 to RCS Loop 2 Hot Leg
Same as S21204MU155.

UNIT 2

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Steam

* 2HV8204, Steam Generator E089 Main Steam Isolation Valve
Full stroke exercising at full plant power would cause a loss of 50 % of our heat removal from the primary coolant system, a reactor trip on assymetric power in the core and actuation of the steam and pressurizer (primary) reliefs.

* 2HV8205, Steam Generator E088 Main Steam Isolation Valve
Same as HV-8204.

* 2HV8419, Main Steam Dump to Atmosphere
Full stroke exercising of this valve during power operation could result in a reactor plant transient due to energy released via the steam dump.

* 2HV8421, Main Steam Dump to Atmosphere
Same as HV-8419.

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10/16/91
Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Grp's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
** System: Air Conditioning System								
* 3HCV9918, Hydrogen Purge Exhaust Control Valve (Dwg.: 40172BSO3/G-2) Valve Mfg.: Fisher								
2	A	6	BTF/M	C	AT/RR		T'SO23-V-3.13)	10
* 3HCV9945, Hydrogen Purge Unit A-080 Discharge (Dwg.: 40172BSO3/G-5) Valve Mfg.: Fisher								
2	A	6	BTF/M	C	AT/RR		T(SO23-V-3.13)	10
* 3HV9917, Containment Hydrogen Purge Outlet (Dwg.: 40172BSO3/G-3) Valve Mfg.: Fisher								
2	A	6	BTF/MO	C	AT/RR		T(SO23-V-3.13)	6&10
* 3HV9946, Containment Hydrogen Purge Inlet (Dwg.: 40172BSO3/G-4) Valve Mfg.: Fisher								
2	A	6	BTF/MO	C	AT/RR		T(SO23-V-3.13)	6&10
* S31500MU038 (3/4-038-C-396), ILRT Pressurization Connection (Dwg.: 40171BSO3/C-2) Valve Mfg.: Kerotest								
2	A	3/4	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S31500MU039 (3/4-039-C-396), ILRT Pressurization Connection (Dwg.: 40171BSO3/D-1) Valve Mfg.: Kerotest								
2	A	3/4	GL/M	C	AT/RR		T(SO23-V-3.13)	10
** System: Auxiliary Boiler System								
* S31312MU037 (2-037-C-387), Auxiliary Steam Inside Containment Isolation Valve (Dwg.: 40169CSO3/D-4) Valve Mfg.: Vogt								
2	A	2	GA/M	C	AT/RR		T(SO23-V-3.13)	10
* S31312MU038 (2-038-C-387), Auxiliary Steam Outside Containment Isolation Valve (Dwg.: 40169CSO3/E-4) Valve Mfg.: Vogt								
2	A	2	GA/M	C	AT/RR		T(SO23-V-3.13)	10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Auxiliary Feedwater								
* 3HV4705, S/G E088 Auxiliary Feedwater Control Valve (Dwg.: 40160AS03/E-3) Valve Mfg.: WKM								
3	B	6	GL/MO	C	BTC/OP	33.5	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	BTO/OP	35	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 3HV4706, S/G E089 Auxiliary Feedwater Control Valve (Dwg.: 40160AS03/D-3) Valve Mfg.: WKM								
3	B	6	GL/MO	C	BTC/OP	33.5	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	BTO/OP	35	O(SO23-3-3.30)	3,4&6
3	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 3HV4712, Auxiliary Feedwater Pump 3P504 Discharge to Steam Generators (Dwg.: 40160AS03/G-3) Valve Mfg.: WKM								
3	B	4	GL/MO	C	BTC/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	BTO/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV4713, Auxiliary Feedwater Pump 3P141 Discharge to Steam Generators (Dwg.: 40160AS03/B-3) Valve Mfg.: WKM								
3	B	4	GL/MO	C	BTC/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	BTO/OP	36	O(SO23-3-3.30)	3&6
3	B	4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV4714, Isolation Valve - Auxiliary Feedwater to S/G E088 (Dwg.: 40160AS03/F-1) Valve Mfg.: Fisher								
2	B	6	GL/EH	C	BTC/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	BTO/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/EH	C	PIT/RR		O(SO23-3-3.30)	3
* 3HV4715, Isolation Valve - Auxiliary Feedwater to S/G E089 (Dwg.: 40160AS03/D-2) Valve Mfg.: WKM								
2	B	6	GL/MO	C	BTC/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	BTO/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV4716, Auxiliary Feedwater Pump Turbine Trip and Throttle Valve (Dwg.: 40160BSO3/E-3) Valve Mfg.: Gimpel Inc.								
3	B	4	GA/MO	C	BTO/OP	13.5	O(SO23-3-3.30)	3,4&6
3	B	4	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 3HV4730, Isolation Valve - Auxiliary Feedwater to S/G E088 (Dwg.: 40160ASO3/F-2) Valve Mfg.: WKM								
2	B	6	GL/MO	C	BTC/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	BTO/OP	10	O(SO23-3-3.30)	3,4&6
2	B	6	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,4&6
* 3HV4731, Isolation Valve - Auxiliary Feedwater to S/G E089 (Dwg.: 40160ASO3/D-1) Valve Mfg.: Fisher								
2	B	6	GL/EH	C	BTC/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	BTO/OP	10	O(SO23-3-3.30)	3
2	B	6	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/EH	C	PIT/RR		O(SO23-3-3.30)	3
* 3HV4762, Bypass Valve for 3HV4712 (Dwg.: 40160ASO3/F-3) Valve Mfg.: Control Components								
3	B	4	GL/EH	C	BTC/OP	40	O(SO23-3-3.30)	3
3	B	4	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	
3	B	4	GL/EH	C	PIT/RR		O(SO23-3-3.30)	
* 3HV4763, Bypass Valve for 3HV4713 (Dwg.: 40160ASO3/C-3) Valve Mfg.: Control Components								
3	B	4	GL/EH	C	BTC/OP	40	O(SO23-3-3.30)	3
3	B	4	GL/EH	C	FSTC/OP		O(SO23-3-3.30)	
3	B	4	GL/EH	C	PIT/RR		O(SO23-3-3.30)	
* S31305MU121 (6-121-D-598), AFP 3P140 Supply to S/G E089 (Dwg.: 40160ASO3/D-3) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31305MU126 (6-126-D-598), AFP 3P141 Discharge Check Valve (Dwg.: 40160ASO3/B-5) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31305MU532 (6-532-D-598), AFP 3P504 Discharge Check Valve (Dwg.: 40160ASO3/G-4) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31305MU547 (6-547-D-598), AFP 3P140 Discharge Check Valve (Dwg.: 40160ASO3/E-3) Valve Mfg.: Anchor/Darling								
3	C	6	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
** System: Boric Acid Makeup								
* 3FV9253, Makeup Water to VCT (Dwg.: 40125BSO3/G-2) Valve Mfg.: ITT								
3	B	3	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	3	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	3	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 3HV9231, Boric Acid Makeup Pump 3P175 Recirculation to Tank T072 (Dwg.: 40125ASO3/D-8) Valve Mfg.: ITT								
3	B	2	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 3HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction (Dwg.: 40125ASO3/B-5) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9236, BAMU Pump 3P174 Recirculation to Tank T071 (Dwg.: 40125ASO3/D-1) Valve Mfg.: ITT								
3	B	2	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	
3	B	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	
3	B	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	
* 3HV9240, BAMU Tank T071 to Charging Suction Header Control Valve (Dwg.: 40125ASO3/B-4) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9247, BAMU Pump to Charging Pump Suction Control Valve (Dwg.: 40125BSO3/E-5) Valve Mfg.: Target Rock								
3	B	3	GA/MO	C	BTO/CS	12	O(SO23-3-3.31)	5&6
3	B	3	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31218MU033 (3-033-D-675), Boric Acid Makeup Pump 3P175 Discharge Check Valve								
(Dwg.: 40125BSO3/B-5) Valve Mfg.: Aloyco/Walworth								
3	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S31218MU035 (3-035-D-675), Boric Acid Makeup Pump 3P174 Discharge Check Valve								
(Dwg.: 40125BSO3/C-5) Valve Mfg.: Aloyco/Walworth								
3	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S31218MU046 (3-046-Y-675), Demin Water to Boric Acid Mixing Tee								
(Dwg.: 40125BSO3/G-3) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTC/OP		T(SO23-V-3.5.4)	
** System: Chemical and Volume Control								
* 3HV9200, Charging Pumps to Regenerative Heat Exchanger E063								
(Dwg.: 40123ASO3/D-3) Valve Mfg.: Fisher								
2	A	2	GL/AO	O	AT/RR		T(SO23-V-3.13)	5&10
2	A	2	GL/AO	O	BTC/CS	8	O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	BTO/CS	25	O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	FSTO/CS		O(SO23-3-3.31)	5&10
2	A	2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	5&10
* 3HV9205, Regenerative Heat Exchanger E063 to Letdown Heat Exchanger								
(Dwg.: 40123ASO3/F-3) Valve Mfg.: Fisher								
2	A	2	GL/AO	O	AT/RR		T(SO23-V-3.13)	3,5&10
2	A	2	GL/AO	O	BTC/CS	4	O(SO23-3-3.31)	3,5&10
2	A	2	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	3,5&10
2	A	2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	3,5&10
* 3LV0227B, VCT Outlet Valve								
(Dwg.: 40124ASO3/B-5) Valve Mfg.: Target Rock								
2	B	4	GA/MO	O	BTC/CS	11	O(SO23-3-3.31)	5&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 3TV9267, Letdown Containment Isolation Valve								
(Dwg.: 40123ASO3/F-3) Valve Mfg.: Westinghouse, Inc.								
2	A	2	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	2	GA/MO	O	BTC/CS	13	O(SO23-3-3.31)	3,5,6&10
2	A	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Fr. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31208MU015 (4-015-C-675), VCT to Charging Pump Suction Check Valve (Dwg.: 40124AS03/B-4) Valve Mfg.: Aloyco/Walworth								
2	C	4	CK/SA	O	CVTC/CS		O(SO23-3-3.31.2)	
* S31208MU017 (2-017-C-554), Charging Pump 3P192 Discharge Check Valve (Dwg.: 40124BS03/C-3) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31208MU067 (2-067-C-554), Charging Pump 3P190 Discharge Check Valve (Dwg.: 40124BS03/G-2) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31208MU069 (2-069-C-554), Charging Pump 3P191 Discharge Check Valve (Dwg.: 40124BS03/D-2) Valve Mfg.: Kerotest								
2	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31208MU082 (3-082-C-675), Grav Feed - BAMU Tanks to Charging Pump 3P190 Suction (Dwg.: 40124BS03/H-5) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31208MU083 (3-083-C-675), BAMU Pumps to Charging Pumps Suction Header (Dwg.: 40124BS03/F-7) Valve Mfg.: Aloyco/Walworth								
2	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31208MU122 (2-122-C-554), Charging Pumps to Regen HX E063 Check Valve (Dwg.: 40123AS03/D-4) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10 VRR-14
2	AC	2	CK/SA	C	CVTC/RR		T(SO23-V-3.13)	10 VRR-14
2	AC	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	10 VRR-14
* S31208MU130 (2-130-C-334), Contmt Isol. - Chg Pump Disch to Aux. Spray Regen HX Bypass (Dwg.: 40123AS03/B-2) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	7&10
2	A	2	GL/M	C	BTC/CS		O(SO23-3-3.31)	7&10
2	A	2	GL/M	C	BTO/CS		O(SO23-3-3.31)	7&10
2	A	2	GL/M	C	PIT/RR		O(SO23-3-3.31)	7&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Chilled Water								
* 3HV9900, Containment Isolation Valve - Cooling Supply, Penet # 45 (Dwg.: 40170AS03/G-4) Valve Mfg.: Fisher								
2	A	8	BTF/MO	O	AT/RR		T(S023-V-3.13)	3,6&10
2	A	8	BTF/MO	O	BTC/OP	14	O(S023-3-3.30)	3,6&10
2	A	8	BTF/MO	O	PIT/RR		O(S023-3-3.30)	3,6&10
* 3HV9920, Containment Isolation Valve - Cooling Supply (Dwg.: 40170AS03/G-2) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/RR		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	12	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* 3HV9921, Containment Isolation Valve - Cooling Return (Dwg.: 40170AS03/F-2) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/RR		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	26	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* 3HV9971, Containment Isolation Valve - Cooling Return Pen # 46 (Dwg.: 40170AS03/F-4) Valve Mfg.: Fisher								
2	A	8	BTF/MO	O	AT/RR		T(S023-V-3.13)	3,6&10
2	A	8	BTF/MO	O	BTC/OP	13	O(S023-3-3.30)	3,6&10
2	A	8	BTF/MO	O	PIT/RR		O(S023-3-3.30)	3,6&10
** System: Component Cooling Water								
* 3HCV6537, CCW Pump 3P024 Miniflow Block Valve (Dwg.: 40127AS03/F-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(S023-3-3.30)	
* 3HCV6538, CCW Pump 3P025 Miniflow Block Valve (Dwg.: 40127AS03/E-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(S023-3-3.30)	

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HCV6539, CCW Pump 3P026 Miniflow Block Valve (Dwg.: 40127ASO3/B-2) Valve Mfg.: Fisher								
3	B	10	BTF/AO	O	BTC/OP	5	O(SO23-3-3.30)	
3	B	10	BTF/AO	O	FSTC/OP		O(SO23-3-3.30)	
3	B	10	BTF/AO	O	PIT/RR		O(SO23-3-3.30)	
* 3HV6211, CCW Non-Critical Loop to Containment Isolation Valve (Dwg.: 40127FSO3/G-3) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 3HV6212, CCW From Heat Exchanger E001A to Non-Critical Loop (Dwg.: 40127DSO3/E-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	13	O(SO23-3-3.31)	14
3	B	28	BTF/AO	C	FSTC/CS		O(SO23-3-3.31)	14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	14
* 3HV6213, Component Cooling Water Discharge to Non-Critical Loop (Dwg.: 40127DSO3/D-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	14	O(SO23-3-3.31)	14
3	B	28	BTF/AO	O	FSTC/CS		O(SO23-3-3.31)	14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	14
* 3HV6216, Isolation Valve - CCW Non-Critical Loop from Containment (Dwg.: 40127FSO3/C-5) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 3HV6218, CCW Pump Suction from Non-Critical Loop (Dwg.: 40127ASO3/E-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	16	O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	FSTC/CS		O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	5&14
* 3HV6219, CCW Pump Suction from Non-Critical Loop (Dwg.: 40127ASO3/D-7) Valve Mfg.: Fisher								
3	B	28	BTF/AO	O	BTC/CS	16	O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	FSTC/CS		O(SO23-3-3.31)	5&14
3	B	28	BTF/AO	O	PIT/RR		O(SO23-3-3.31)	5&14

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV6223, Isolation Valve - CCW Non-Critical Loop Containment Inlet (Dwg.: 40127FSO3/G-4) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 3HV6236, Containment Isolation - CCW Non-Critical Loop Return (Dwg.: 40127FSO3/C-6) Valve Mfg.: Fisher								
2	A	10	BTF/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	10	BTF/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	10	BTF/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10
* 3HV6366, Component Cooling Water to Emergency Cooling Unit E-401 (Dwg.: 40172BSO3/C-7) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6367, Component Cooling Water from Emergency Cooling Unit E-401 (Dwg.: 40172BSO3/D-7) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6368, Component Cooling Water to Emergency Cooling Unit E-400 (Dwg.: 40172BSO3/E-7) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6369, Component Cooling Water from Emergency Cooling Unit E-400 (Dwg.: 40172BSO3/F-7) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV6370, Component Cooling Water to Emergency Cooling Unit E-399 (Dwg.: 40172BSO3/D-2) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6371, Component Cooling Water from Emergency Cooling Unit E-399 (Dwg.: 40172BSO3/C-2) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,5&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6372, Component Cooling Water to Emergency Cooling Unit E-402 (Dwg.: 40172BSO3/F-2) Valve Mfg.: WKM								
2	A	10	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	O	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6373, Component Cooling Water from Emergency Cooling Unit E-402 (Dwg.: 40172BSO3/E-2) Valve Mfg.: WKM								
2	A	10	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	10	GA/MO	C	BTC/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	10	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV6500, Component Cooling Water from SDCS Heat Exchanger E003 (Dwg.: 40127ESO3/F-4) Valve Mfg.: Fisher								
3	B	18	BTF/AO	C	BTO/CS	8	O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	FSTO/CS		O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	PIT/RR		O(SO23-3-3.31)	3&5
* 3HV6501, Component Cooling Water from SDCS Heat Exchanger E004 (Dwg.: 40127ESO3/C-4) Valve Mfg.: Fisher								
3	B	18	BTF/AO	C	BTO/CS	8	O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	FSTO/CS		O(SO23-3-3.31)	3&5
3	B	18	BTF/AO	C	PIT/RR		O(SO23-3-3.31)	3&5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3PSV6356, CCW Surge Tank T003 Relief Valve (Dwg.: 40127BS03/H-5) Valve Mfg.: Crosby								
3	C	1	SV/SA	C	RVT/RR		M(S023-I-8.88)	2
* 3PSV6359, CCW Surge Tank T004 Relief Valve (Dwg.: 40127BS03/D-5) Valve Mfg.: Crosby								
3	C	1	SV/SA	C	RVT/RR		M(S023-I-8.88)	2
* S31203MR229, Drain Valve, CCW Pump P026 Drain Line (Dwg.: 40127AS03/B-5) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7
* S31203MR232, Drain Valve, CCW Pump P025 Drain Line (Dwg.: 40127AS03/D-6) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7
* S31203MR233, Drain Valve, CCW Pump P024 Drain Line (Dwg.: 40127AS03/G-5) Valve Mfg.: Vogt								
3	B	1	GATE/M	C	BTO/OP		O(Later)	7
* S31203MU101 (28-101-D-725), CCW Pump 3P024 Discharge Check Valve (Dwg.: 40127AS03/G-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(S023-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(S023-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(S023-3-3.31.2)	
* S31203MU102 (28-102-D-725), CCW Pump 3P026 Discharge Check Valve (Dwg.: 40127AS03/B-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(S023-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(S023-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(S023-3-3.31.2)	

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Disc Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31203MU103 (28-103-D-725), CCW Pump 3P025 Discharge Check Valve (Dwg.: 40127AS03/D-4) Valve Mfg.: TRW/Mission								
3	C	28	SDCK/SA	OC	CVPO/OP		T(SO23-V-3.5.4)	
3	C	28	SDCK/SA	OC	CVTC/CS		O(SO23-3-3.31.2)	
3	C	28	SDCK/SA	OC	CVTO/CS		O(SO23-3-3.31.2)	
* S31203MU264 (1-264-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A (Dwg.: 40127BS03/H-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S31203MU265 (1-265-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A (Dwg.: 40127BS03/G-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S31203MU266 (1-266-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B (Dwg.: 40127BS03/D-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S31203MU267 (1-267-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B (Dwg.: 40127BS03/D-5) Valve Mfg.: Kerotest								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	13
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	13
* S31203MU268 (1-268-D-627), Nuclear Plant Service Water Supply to CCW Loop A (Dwg.: 40127BS03/A-3) Valve Mfg.: Anchor Darling								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	
* S31203MU269 (1-269-D-627), Nuclear Plant Service Water Supply to CCW Loop B (Dwg.: 40127BS03/B-3) Valve Mfg.: Anchor Darling								
3	AC	1	CK/SA	C	AT/RR		T(SO23-SPT-2)	
3	AC	1	CK/SA	C	CVTC/RR		T(SO23-SPT-2)	

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Condensate and Feedwater								
* 3HV1105, S/G E089 Feedwater Bypass Valve (Dwg.: 40156BS03/B-6) Valve Mfg.: Copes Vulcan, Inc.								
-	B	6	GA/AO	C	BTC/CS	10	O(SO23-3-3.31)	3
-	B	6	GA/AO	C	FSTC/CS		O(SO23-3-3.31)	3
-	B	6	GA/AO	C	PIT/RR		O(SO23-3-3.31)	3
* 3HV1106, S/G E088 Feedwater Bypass Valve (Dwg.: 40156BS03/E-6) Valve Mfg.: Copes Vulcan, Inc.								
-	B	6	GA/AO	C	BTC/CS	10	O(SO23-3-3.31)	3
-	B	6	GA/AO	C	FSTC/CS		O(SO23-3-3.31)	3
-	B	6	GA/AO	C	PIT/RR		O(SO23-3-3.31)	3
* 3HV4047, Feedwater Block Valve - Steam Generator E088 (Dwg.: 40156BS03/F-4) Valve Mfg.: WKM								
-	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
-	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 3HV4048, Feedwater Isolation Valve - Steam Generator E088 (Dwg.: 40156BS03/F-2) Valve Mfg.: WKM								
2	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	FSTC/CS		O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 3HV4051, Feedwater Block Valve - Steam Generator E089 (Dwg.: 40156BS03/B-4) Valve Mfg.: WKM								
-	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
-	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* 3HV4052, Feedwater Isolation Valve - Steam Generator E089 (Dwg.: 40156BS03/B-2) Valve Mfg.: WKM								
2	B	20	GA/EH	O	BTC/CS	10	O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	FSTC/CS		O(SO23-3-3.31)	3&5
2	B	20	GA/EH	O	PIT/RR		O(SO23-3-3.31)	3&5
* S31305MU036 (20-036-C-609), Main Feed Check Valve at Steam Generator E089 (Dwg.: 40141AS03/C-7) Valve Mfg.: Anchor/Darling								
2	C	20	CK/SA	O	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-20
2	C	20	CK/SA	O	CVTO/CS		O(Later)	1&18 VRR-20

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31305MU124 (6-124-C-599), AFW Check Valve at Steam Generator E089 (Dwg.: 40141AS03/B-7) Valve Mfg.: Anchor/Darling								
2	C	6	CK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
* S31305MU129 (20-129-C-609), Main Feed Check Valve at Steam Generator E088 (Dwg.: 40141AS03/F-7) Valve Mfg.: Anchor/Darling								
2	C	20	CK/SA	O	CVTC/RR		M(S023-I-6.160)	1&18 VRR-20
2	C	20	CK/SA	O	CVTO/CS		O(Later)	1&18 VRR-20
* S31305MU448 (6-448-C-599), AFW Check Valve at Steam Generator E088 (Dwg.: 40141AS03/F-7) Valve Mfg.: Anchor/Darling								
2	C	6	CK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
** System: Containment HVAC (Normal)								
* 3HV9821, Isolation Valve - Containment Minipurge Supply (Dwg.: 40171AS03/B-5) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* 3HV9823, Isolation Valve - Containment Minipurge Supply (Dwg.: 40171AS03/B-4) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* 3HV9824, Isolation Valve - Containment Minipurge Exhaust (Dwg.: 40171AS03/D-3) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9825, Isolation Valve - Containment Minipurge Exhaust (Dwg.: 40171AS03/D-7) Valve Mfg.: Fisher								
2	A	8	BTF/AO	O	AT/OP		T(S023-V-3.13)	3&10
2	A	8	BTF/AO	O	BTC/OP	5	O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	FSTC/OP		O(S023-3-3.30)	3&10
2	A	8	BTF/AO	O	PIT/RR		O(S023-3-3.30)	3&10
* 3HV9948, Containment Purge Supply (Dwg.: 40171AS03/B-6) Valve Mfg.: Fisher								
2	A	42	BTF/AO	C	AT/OP		T(S023-V-3.13)	3&10
2	A	42	BTF/AO	C	BTC/CS	12	O(S023-3-3.31)	3&10
2	A	42	BTF/AO	C	FSTC/CS		O(S023-3-3.31)	3&10
* 3HV9949, Containment Purge Supply (Dwg.: 40171AS03/D-4) Valve Mfg.: Fisher								
2	A	42	BTF/MO	C	AT/OP		T(S023-V-3.13)	3,6&10
2	A	42	BTF/MO	C	BTC/CS	12	O(S023-3-3.31)	3,6&10
* 3HV9950, Containment Purge Exhaust (Dwg.: 40171AS03/C-3) Valve Mfg.: Fisher								
2	A	42	BTF/MO	C	AT/OP		T(S023-V-3.13)	3,6&10
2	A	42	BTF/MO	C	BTC/CS	12	O(S023-3-3.31)	3,6&10
* 3HV9951, Containment Purge Exhaust (Dwg.: 40171AS03/C-6) Valve Mfg.: Fisher								
2	A	42	BTF/AO	C	AT/OP		T(S023-V-3.13)	3&10
2	A	42	BTF/AO	C	BTC/CS	12	O(S023-3-3.31)	3&10
2	A	42	BTF/AO	C	FSTC/CS		O(S023-3-3.31)	3&10
** System: Containment Spray								
* 3HV8150, Isolation Valve - SDCS Heat Exchanger E004 to LPSI Header (Dwg.: 40114BS03/E-5) Valve Mfg.: Walworth								
2	B	10	GL/MO	C	BTC/CS	90	O(S023-3-3.31)	6
2	B	10	GL/MO	C	BTO/CS	90	O(S023-3-3.31)	6
2	B	10	GL/MO	C	PIT/RR		O(S023-3-3.31)	6

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV8151, Isolation Valve - SDCS Heat Exchanger E003 to LPSI Header (Dwg.: 40114BS03/F-5) Valve Mfg.: Walworth								
2	B	10	GL/MO	C	BTC/CS	90	O(SO23-3-3.31)	6
2	B	10	GL/MO	C	BTO/CS	90	O(SO23-3-3.31)	6
2	B	10	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6
* 3HV9367, Containment Isolation MOV - Spray Header #1 (Dwg.: 40114BS03/C-4) Valve Mfg.: Target Rock								
2	A	8	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	8	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV9368, Containment Isolation MOV - Spray Header #2 (Dwg.: 40114BS03/G-4) Valve Mfg.: Target Rock								
2	A	8	GA/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	8	GA/MO	C	BTO/OP	12	O(SO23-3-3.30)	3,6&10
2	A	8	GA/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* S31206MU004 (8-004-C-406), Spray Header #1 Containment Isolation Stop Check Valve (Dwg.: 40114BS03/C-3) Valve Mfg.: Anchor/Darling								
2	AC	8	SCK/SA	C	AT/RR		T(SO23-V-3.13)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVPO/RR		T(M.O.)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVTO/RR		M(RMO)	1,5,8,10&18 VRR-13
* S31206MU006 (8-006-C-406), Spray Header #2 Containment Isolation Stop Check Valve (Dwg.: 40114BS03/G-3) Valve Mfg.: Anchor/Darling								
2	AC	8	SCK/SA	C	AT/RR		T(SO23-V-3.13)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVPO/RR		T(M.O.)	1,5,8,10&18 VRR-13
2	AC	8	SCK/SA	C	CVTO/RR		M(RMO)	1,5,8,10&18 VRR-13

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San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31206MU010 (2-010-C-329), Containment Spray Pump 3P012 Miniflow Stop Check Valve								
(Dwg.: 40114AS03/D-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(S023-V-3.5.4)	
* S31206MU011 (2-011-C-329), Containment Spray Pump 3P013 Miniflow Stop Check Valve								
(Dwg.: 40114AS03/H-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(S023-V-3.5.4)	
* S31206MU012 (8-012-C-406), Spray Pump 3P012 Discharge Stop Check Valve								
(Dwg.: 40114AS03/C-3) Valve Mfg.: Anchor/Darling								
2	C	8	SCK/SA	C	CVTC/CS		O(S023-3-3.31.2)	5
2	C	8	SCK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
* S31206MU014 (8-014-C-406), Spray Pump 3P013 Discharge Stop Check Valve								
(Dwg.: 40114AS03/G-3) Valve Mfg.: Anchor/Darling								
2	C	8	SCK/SA	C	CVTC/CS		O(S023-3-3.31.2)	5
2	C	8	SCK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
* S31206MU029 (8-029-C-645), Spray Pump 3P012 Discharge to SDCS HV E004 Check Valve								
(Dwg.: 40114AS03/C-2) Valve Mfg.: Anchor/Darling								
2	C	8	CK/SA	C	CVTC/RR		O(S023-3-3.31.2)	5
2	C	8	CK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
* S31206MU030 (8-030-C-645), Spray Pump 3P012 Discharge to SDCS HV E003 Check Valve								
(Dwg.: 40114AS03/G-3) Valve Mfg.: Anchor Darling								
2	C	8	CK/SA	C	CVTC/RR		O(S023-3-3.31.2)	5
2	C	8	CK/SA	C	CVTO/CS		O(S023-3-3.31.2)	5
** System: Diesel Fuel Oil								
* S32421MU039 (2-039-D-627), Diesel Fuel Oil Transfer Pump 3P096 Discharge Check Valve								
(Dwg.: 40116AS03/C-6) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(S023-V-3.5.4)	

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S32421MU048 (2-048-D-627), Diesel Fuel Oil Transfer Pump 3P093 Discharge Check Valve (Dwg.: 40116ASO3/D-7) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S32421MU054 (2-054-D-627), Diesel Fuel Oil Transfer Pump 3P095 Discharge Check Valve (Dwg.: 40116ASO3/C-3) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S32421MU063 (2-063-D-627), Diesel Fuel Transfer Pump 3P094 Discharge Check Valve (Dwg.: 40116ASO3/D-4) Valve Mfg.: Kerotest								
3	C	2	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
** System: Diesel Generator Air Start								
* 3HV5931A, Diesel Generator 3G002, 20 Cyl., Air Start Relay Valve (Dwg.: 40110ASO3/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HV5931B, Diesel Generator 3G002, 16 Cyl., Air Start Relay Valve (Dwg.: 40110BSO3/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HV5931C, Diesel Generator 3G002, 20 Cyl., Air Start Relay Valve (Dwg.: 40110ASO3/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HV5931D, Diesel Generator 3G002, 16 Cyl., Air Start Relay Valve (Dwg.: 40110BSO3/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HV5931E, Diesel Generator 3G003, 20 Cyl., Air Start Relay Valve (Dwg.: 40110CSO3/E-1) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(3023-3-3.23)	17
* 3HV5931F, Diesel Generator 3G003, 16 Cyl., Air Start Relay Valve (Dwg.: 40110DSO3/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17

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San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV5931G, Diesel Generator 3G003, 20 Cyl., Air Start Relay Valve (Dwg.: 40110CSO3/E-2) Valve Mfg.: Later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HV5931H, Diesel Generator 3G003, 16 Cyl., Air Start Relay Valve (Dwg.: 40110DSO3/E-1) Valve Mfg.: later								
3	B		GL/AO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955A1, Air Start Sol. - Diesel Generator 3G002, 20 Cyl., Right Bank (Dwg.: 40110ASO3/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955B1, Air Start Sol. - Diesel Generator 3G002, 16 Cyl., Left Bank (Dwg.: 40110BSO3/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955C1, Air Start Sol. - Diesel Generator 3G002, 20 Cyl., Left Bank (Dwg.: 40110ASO3/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955D1, Air Start Sol. - Diesel Generator 3G002, 16 Cyl., Right Bank (Dwg.: 40110BSO3/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955E2, Air Start Sol. - Diesel Generator 3G003, 20 Cyl., Right Bank (Dwg.: 40110CSO3/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955F2, Air Start Sol. - Diesel Generator 3G003, 16 Cyl., Left Bank (Dwg.: 40110DSO3/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955G2, Air Start Sol. - Diesel Generator 3G003, 20 Cyl., Left Bank (Dwg.: 40110CSO3/E-2) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17
* 3HY5955H2, Air Start Sol. - Diesel Generator 3G003, 16 Cyl., Right Bank (Dwg.: 40110DSO3/E-1) Valve Mfg.: MKW								
NA	B		3-Way/SO	C	BTO/OP	10	O(SO23-3-3.23)	17

UNIT 2
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Diesel Generator System								
* S32420MU135 (1 1/2-135-D-*), Diesel Air Receiver T-277 Air Inlet Check Valve								
(Dwg.: 40110CSO3/G-3) Valve Mfg.: Later								
C		1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S32420MU146 (1 1/2-146-D-*), Diesel Air Receiver T-274 Air Inlet Check Valve								
(Dwg.: 40110ASO3/H-1) Valve Mfg.: Later								
C		1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S32420MU160 (1 1/2-160-D-*), Diesel Air Receiver T-275 Air Inlet Check Valve								
(Dwg.: 40110ASO3/G-3) Valve Mfg.: Later								
C		1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
* S32420MU168 (1 1/2-168-D-*), Diesel Air Receiver T-276 Air Inlet Check Valve								
(Dwg.: 40110CSO3/H-1) Valve Mfg.: Later								
C		1 1/2	CK/SA	C	CVTC/OP		O(SO23-3-3.30)	
** System: Fire Protection								
* 3HV5686, Containment Isol. - Fire Protection (Outside Containment)								
(Dwg.: 40189BSO3/D-3) Valve Mfg.: WKM								
2	A	4	GA/MO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	4	GA/MO	C	BTC/CS	33	O(SO23-3-3.31)	3&10
2	A	4	GA/MO	C	PIT/RR		O(SO23-3-3.31)	3&10
* SA2301MU095, Containment Isol. - Fire Protection (Inside Containment)								
(Dwg.: 40189BSO2/D-4) Valve Mfg.: Anchor/Darling								
2	AC	4	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
** System: Fuel Stor. Pool & Refueling								
* 3LV0227C, RWST to Charging Pump Suction								
(Dwg.: 40124BSO3/A-7) Valve Mfg.: Target Rock								
2	B	4	GA/MO	C	BTO/CS	11	O(SO23-3-3.31)	5&6
2	B	4	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31219MU052 (6-052-C-675), RWST T006 to Charging Pump Suction Header (Dwg.: 40124BSO3/B-7) Valve Mfg.: Aloyco/Walworth								
2	C	6	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	5
* S31219MU100 (10-100-C-212), Refueling Pool Outlet Inside Containment (Dwg.: 40122ASO3/G-4) Valve Mfg.: Walworth								
2	A	10	GA/M	C	AT/RR		T(SO23-V-3.13)	10
* S31219MU101 (10-101-C-212), Refueling Pool Outlet Outside Containment to Pump 2P014 (Dwg.: 40122ASO3/G-4) Valve Mfg.: Walworth								
2	A	10	GA/M	C	AT/RR		T(SO23-V-3.13)	10
** System: Gas Radwaste								
* 3HV7258, Containment Isolation - Waste Gas from Contmt to Surge Tank (Dwg.: 40131ASO3/F-3) Valve Mfg.: WKM								
2	A	3	GA/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3	GA/MO	O	BTC/OP	31	O(SO23-3-3.30)	3,6&10
2	A	3	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV7259, Containment Isolation - Safety Injection Tank Vent Header (Dwg.: 40131ASO3/F-2) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GA/AO	O	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
** System: Liquid Radwaste								
* 3HV7512, RCDT Pump Discharge From Containment to Rad Waste (Dwg.: 40131ASO3/B-3) Valve Mfg.: WKM								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3	GL/MO	C	BTC/OP	17	O(SO23-3-3.30)	3,6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10

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* 3HV7513, Containment Isolation - RCS Drain to Radwaste (Dwg.: 40131ASO3/B-2) Valve Mfg.: Fisher								
2	A	3	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GL/AO	C	BTC/OP	7	O(SO23-3-3.30)	3&10
2	A	3	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* S31901MU321 (2-321 C-376), Isolation Valve - Coolant Polishing Demin to Quench Tank (Dwg.: 40111CSO3/G-6) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S31901MU573 (2-573-C-611), Check Valve - Clnt Pol Demin to Quench Tank (Dwg.: 40111CSO3/G-5) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
** System: Nitrogen Gas								
* 3HV5434, Nitrogen to Safety Injection Tanks (Dwg.: 40192CSO3/D-6) Valve Mfg.: Fisher								
2	A	2	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	2	GL/AO	C	BTC/OP	4	O(SO23-3-3.30)	3&10
2	A	2	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	2	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV5117, Nitrogen Supply to Containment (Dwg.: 40192CSO3/F-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	O	BTC/OP	2	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* S32418MU002 (3/4-002-C-611), Nitrogen Supply to Containment (Dwg.: 40192CSO3/E-5) Valve Mfg.: Kerotest								
2	AC	3/4	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
* S32418MU108 (2-108-C-627), Nitrogen Supply to Safety Injection Tanks Check Valve (Dwg.: 40192CSO3/C-6) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
** System: Nuclear Sampling								
* 3HV0500, Post-LOCA Hydrogen Monitor (Dwg.: 40172AS03/C-3) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(SO23-V-3.13)	10
* 3HV0501, Post-Loca Hydrogen Monitor (Dwg.: 40172AS03/D-2) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(SO23-V-3.13)	10
* 3HV0502, Post-Loca Hydrogen Monito (Dwg.: 40172AS03/B-3) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(SO23-V-3.13)	10
* 3HV0503, Post-Loca Hydrogen Monitor (Dwg.: 40172AS03/B-2) Valve Mfg.: Target Rock								
2	A	1	GA/SO	C	AT/RR		T(SO23-V-3.13)	10
* 3HV0508, RCS Hot Leg Sample Containment Isolation Valve (Dwg.: 40134AS03/F-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	33	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV0509, RCS Hot Leg Sample Containment Isolation Valve (Dwg.: 40134AS03/F-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	4	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV0510, Pressurizer Vapor Sample Containment Isolation Valve (Dwg.: 40134AS03/E-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	24	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10

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* 3HV0511, Pressurizer Vapor Sample Containment Isolation Valve (Dwg.: 40134ASO3/E-5) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV0512, Pressurizer Surge Line Sample Containment Isolation Valve (Dwg.: 40134ASO3/C-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	31	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV0513, Pressurizer Surge Line Sample Containment Isolation Valve (Dwg.: 40134ASO3/C-6) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	5	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV0514, Isolation Valve Quench Tank to Waste Gas System (Dwg.: 40111CSO3/F-3) Valve Mfg.: WKM								
2	A	3/4	GL/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	O	BTC/OP	31	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10
* 3HV0515, Isolation Valve Quench Tank/RCDT to Waste Gas Sampling Syst (Dwg.: 40111CSO3/G-2) Valve Mfg.: Fisher								
2	A	3/4	GL/AO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GL/AO	C	BTC/OP	2	O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GL/AO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV0516, Isolation Valve RCDT to Waste Gas Sampling System (Dwg.: 40111CSO3/G-3) Valve Mfg.: WKM								
2	A	3/4	GL/MO	O	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	O	BTC/OP	25	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(SO23-3-3.30)	3,6&10

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* 3HV0517, RCS Hot Leg #2 Sample Isolation Valve (Dwg.: 40134ASO3/G-7) Valve Mfg.: WKM								
2	A	3/4	GL/MO	C	AT/RR		T(SO23-V-3.13)	3,6&10
2	A	3/4	GL/MO	C	BTC/OP	29	O(SO23-3-3.30)	3,6&10
2	A	3/4	GL/MO	C	PIT/RR		O(SO23-3-3.3)	3,6&10
* 3HV7800, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Dwg.: 40170ASO3/E-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7801, Containment Airborne Rad Monitor Train "A" Isol (Pen 30B) (Dwg.: 40170ASO3/E-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7802, Containment Airborne Rad Monitor Train "A" Isol (Pen 30A) (Dwg.: 40170ASO3/D-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7803, Containment Airborne Rad Monitor Train "B" Isol (Pen 3A) (Dwg.: 40170ASO3/D-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7805, Containment Airborne Radiation Monitor Train "B" (Dwg.: 40170ASO3/C-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10

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* 3HV7806, Containment Airborne Radiation Monitor Train "B" (Dwg.: 40170AS03/C-4) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7810, Containment Airborne Rad Monitor Train "B" (Pen 16C) (Dwg.: 40170AS03/C-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7811, Containment Airborne Rad Monitor Train "B" (Pen 27C) (Dwg.: 40170AS03/C-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV7816, Containment Airborne Radiation Monitor Emergency Sample (Dwg.: 40170AS03/E-3) Valve Mfg.: Target Rock								
2	A	3/4	GA/SO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3/4	GA/SO	O	BTC/OP	1	O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3/4	GA/SO	O	PIT/RR		O(SO23-3-3.30)	3&10
** System: Nuclear Service Water								
* 3HV7911, Containment Isolation - Nuclear Service Water (Dwg.: 40140BS03/F-5) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	3	GA/AO	O	BTC/OP	7	O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	FSTC/OP		O(SO23-3-3.30)	3&10
2	A	3	GA/AO	O	PIT/RR		O(SO23-3-3.30)	3&10
* S31415MU236 (3-236-C-675), Nuclear Service Water Containment Isolation Check Valve (Dwg.: 40140BS03/G-5) Valve Mfg.: Aloyco/Walworth								
2	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	10

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** System: Reactor Coolant								
* 3HV0296A, Reactor Head Vent (Dwg.: 40111CSO3/F-6) Valve Mfg.:						Target	Rock	
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 3HV0296B, Reactor Head Vent (Dwg.: 40111CSO3/F-6) Valve Mfg.:						Target	Rock	
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 3HV0297A, Pressurizer Vent Valve (Dwg.: 40111CSO3/E-6) Valve Mfg.:						Target	Rock	
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 3HV0297B, Pressurizer Vent Valve (Dwg.: 40111CSO3/E-6) Valve Mfg.:						Target	Rock	
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 3HV0298, Vent to Contmt from Reactor Head/Pressurizer (Dwg.: 40111CSO3/E-5) Valve Mfg.:						Target	Rock	
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	

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* 3HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent (Dwg.: 40111CS03/E-4) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTC/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	BTO/CS	5	O(SO23-3-3.48)	
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.48)	
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.48)	
* 3HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray (Dwg.: 40123AS03/C-6) Valve Mfg.: WKM								
1	B	2	GA/MO	C	BTC/CS	17	O(SO23-3-3.31)	5&6
1	B	2	GA/MO	C	BTO/CS	17	O(SO23-3-3.31)	5&6
1	B	2	GA/MO	C	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9202, Regenerative Heat Exchanger E063 to RCS Loop 2A (Dwg.: 40123AS03/E-6) Valve Mfg.: WKM								
1	B	2	GA/MO	O	BTC/CS	23	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	BTO/CS	23	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 3HV9203, Regenerative Heat Exchanger E063 to RCS Loop 1A (Dwg.: 40123AS03/E-6) Valve Mfg.: WKM								
1	B	2	GA/MO	O	BTC/CS	20	O(SO23-3-3.31)	5
1	B	2	GA/MO	O	BTO/CS	20	O(SO23-3-3.31)	6
1	B	2	GA/MO	O	PIT/RR		O(SO23-3-3.31)	6
* 3HV9204, RCS Loop 2B to Regenerative Heat Exchanger E063 (Dwg.: 40123AS03/F-6) Valve Mfg.: Fisher								
1	B	2	GA/AO	O	BTC/CS	4	O(SO23-3-3.31)	5
1	B	2	GA/AO	O	FSTC/CS		O(SO23-3-3.31)	5
1	B	2	GA/AO	O	PIT/RR		O(SO23-3-3.31)	5
* 3HV9217, RCS Bleed Off to Volume Control Tank (Dwg.: 40124AS03/G-2) Valve Mfg.: WKM								
2	A	3/4	GL/MO	O	AT/RR		T(SO23-V-3.13)	3,5,6&10
2	A	3/4	GL/MO	O	BTC/CS	15	O(SO23-3-3.31)	3,5,6&10
2	A	3/4	GL/MO	O	PIT/RR		O(SO23-3-3.31)	3,5,6&10

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San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str	Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9218, RCS Bleed Off to VCT Isolation Valve Inside Containment (Dwg.: 40124ASO3/F-3) Valve Mfg.: Fisher									
2	A	3/4	GL/AO	O	AT/RR			T(SO23-V-3.13)	3,5&10
2	A	3/4	GL/AO	O	BTC/CS	5		O(SO23-3-3.31)	3,5&10
2	A	3/4	GL/AO	O	FSTC/CS			O(SO23-3-3.31)	3,5&10
2	A	3/4	GL/AO	O	PIT/RR			O(SO23-3-3.31)	3,5&10
* 3PSV0200, Pressurizer Safety Valve (Dwg.: 40111BSO3/G-7) Valve Mfg.: Dresser									
1	C	6	SV/SA	C	RVT/RR			M(SO23-I-2.1)	2
* 3PSV0201, Pressurizer Safety Valve (Dwg.: 40111BSO3/G-5) Valve Mfg.: Dresser									
1	C	6	SV/SA	C	RVT/RR			M(SO23-I-2.1)	2
* 3TV0221, Letdown Isolation Valve (Dwg.: 40123ASO3/F-6) Valve Mfg.: ITT									
1	B	2	GL/AO	O	BTC/CS	4		O(SO23-3-3.31)	5
1	B	2	GL/AO	O	FSTC/CS			O(SO23-3-3.31)	5
1	B	2	GL/AO	O	PIT/RR			O(SO23-3-3.31)	5
* S31201MU019 (2-019-A-554), Auxiliary Spray Check Valve (Dwg.: 40123ASO3/C-7) Valve Mfg.: Kerotest									
1	C	2	CK/SA	C	CVTO/CS			O(SO23-3-3.31.2)	5
* S31201MU020 (2-020-A-554), Charging Line Check Valve to RCS Loop 2A (Dwg.: 40123ASO3/E-7) Valve Mfg.: Kerotest									
1	C	2	CK/SA	C	CVTO/CS			O(SO23-3-3.31.2)	
* S31201MU021 (2-021-A-554), Charging Line Check Valve to RCS Loop 1A (Dwg.: 40123ASO3/D-7) Valve Mfg.: Kerotest									
1	C	2	CK/SA	C	CVTO/CS			O(SO23-3-3.31.2)	
* S31201MU129 (2-129-A-554), Auxiliary Spray to RCS From Charging Pumps (Dwg.: 40123ASO3/B-3) Valve Mfg.: Kerotest									
1	AC	2	CK/SA	C	AT/RR			T(SO23-V-3.13)	10
1	AC	2	CK/SA	C	CVTO/CS			O(SO23-3-3.31.2)	10

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San Onofre Nuclear Generating Station
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31201MU200 (14-200-C-645), Pump 3P016 Suction Check Valve								
(Dwg.: 40112BSO3/F-6) Valve Mfg.: Anchor/Darling								
2	C	14	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	
2	C	14	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S31201MU202 (14-202-C-645), LPSI Pump Suction Check Valve								
(Dwg.: 40112BSO3/G-5) Valve Mfg.: Anchor/Darling								
2	C	14	CK/SA	C	CVTC/CS		O(SO23-3-3.31.2)	
2	C	14	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
** System: Resp. & Service Air System								
* 3HV5388, Containment Isolation Valve for Instrument Air								
(Dwg.: 40191GSO3/G-6) Valve Mfg.: Fisher								
2	A	1-1/2	GL/AO	O	AT/RR		T(SO23-V-3.13)	3&10
2	A	1-1/2	GL/AO	O	BTC/CS	2	O(SO23-3-3.31)	3&10
2	A	1-1/2	GL/AO	O	FSTC/CS		O(SO23-3-3.31)	3&10
2	A	1-1/2	GL/AO	O	PIT/RR		O(SO23-3-3.31)	3&10
* S32417MU016 (1-1/2-016-C-617), Instrument Air Isolation Check Valve - Inside containment								
(Dwg.: 40191GSO3/G-6) Valve Mfg.: Kerotest								
2	AC	1-1/2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
* S32423MU017 (2-017-C-627), Service Air Containment Isolation Valve								
(Dwg.: 40191ESO3/C-4) Valve Mfg.: Kerotest								
2	AC	2	CK/SA	C	AT/RR		T(SO23-V-3.13)	10
* S32423MU055 (2-055-C-387), Containment Isolation Valve - Service Air								
(Dwg.: 40191ESO3/C-5) Valve Mfg.: Vogt								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10
** System: Safety Injection								
* 3HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System								
(Dwg.: 40112BSO3/C-3) Valve Mfg.: Borg Warner								
2	B	10	GL/MO	C	BTO/CS	80	O(SO23-3-3.31)	6
2	B	10	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6

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San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV8152, Isolation Valve - SDCS Heat Exchanger E004 Inlet (Dwg.: 40112BS03/F-2) Valve Mfg.: Walworth								
2	B	12	GA/MO	C	BTC/CS	100	O(S023-3-3.31)	6
2	B	12	GA/MO	C	BTO/CS	100	O(S023-3-3.31)	6
2	B	12	GA/MO	C	PIT/RR		O(S023-3-3.31)	6
* 3HV8153, Isolation Valve - SDCS Heat Exchanger E003 Inlet (Dwg.: 40112BS03/G-2) Valve Mfg.: Walworth								
2	B	12	GA/MO	C	BTC/CS	100	O(S023-3-3.31)	6
2	B	12	GA/MO	C	BTO/CS	100	O(S023-3-3.31)	6
2	B	12	GA/MO	C	PIT/RR		O(S023-3-3.31)	6
* 3HV8160, Flow Control Valve - SDCS Heat Exchanger Bypass (Dwg.: 40112BS03/C-2) Valve Mfg.: Fisher								
2	B	10	GL/MO	O	BTC/CS	40	O(S023-3-3.31)	6
2	B	10	GL/MO	O	PIT/RR		O(S023-3-3.31)	6
* 3HV8161, Block Valve - LPSI to SDCS Heat Exchanger Bypass (Dwg.: 40112BS03/C-2) Valve Mfg.: Walworth								
2	B	14	GA/MO	O	BTC/CS	105	O(S023-3-3.31)	6
2	B	14	GA/MO	O	PIT/RR		O(S023-3-3.31)	6
* 3HV8162, Block Valve - LPSI Pump 3P015 Miniflow (Dwg.: 40112BS03/G-2) Valve Mfg.: Westinghouse, Inc.								
2	B	2	GA/MO	O	BTC/CS	12	O(S023-3-3.31)	6
2	B	2	GA/MO	O	PIT/RR		O(S023-3-3.31)	6
* 3HV8163, Block Valve - LPSI Pump 3P016 Miniflow (Dwg.: 40112BS03/D-3) Valve Mfg.: Westinghouse, Inc.								
2	B	2	GA/MO	O	BTC/CS	12	O(S023-3-3.31)	6
2	B	2	GA/MO	O	PIT/RR		O(S023-3-3.31)	6
* 3HV9302, Control Valve - Containment Emerg Sump to Spray Pump 3P013 (Dwg.: 40112AS03/B-6) Valve Mfg.: Fisher								
2	B	24	BTF/MO	C	BTO/OP	39.5	O(S023-3-3.30)	3&6
2	B	24	BTF/MO	C	PIT/RR		O(S023-3-3.30)	3&6
* 3HV9303, Control Valve - Containment Emerg Sump to Spray Pump 3P012 (Dwg.: 40112AS03/B-6) Valve Mfg.: Fisher								
2	B	24	BTF/MO	C	BTO/OP	39.5	O(S023-3-3.30)	3&6
2	B	24	BTF/MO	C	PIT/RR		O(S023-3-3.30)	3&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9304, Control Valve - Containment Emergency Sump Outlet (Dwg.: 40112ASO3/B-3) Valve Mfg.: Fisher								
2	B	24	BTF/MO	O	BTO/OP	39.5	O(SO23-3-3.30)	6
2	B	24	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	6
* 3HV9305, Control Valve - Containment Emergency Sump Outlet (Dwg.: 40112ASO3/B-3) Valve Mfg.: Fisher								
2	B	24	BTF/MO	O	BTO/OP	39.5	O(SO23-3-3.30)	6
2	B	24	BTF/MO	O	PIT/RR		O(SO23-3-3.30)	6
* 3HV9306, Isolation Valve - SI Recirc Return to RWST TOO5 (Dwg.: 40114DSO3/B-3) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	30	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9307, Isolation Valve - SI Recirc Return to RWST TOO5 (Dwg.: 40114DSO3/B-4) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	30	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9322, Control Valve - LPSI Header to RCS Loop 1A (Dwg.: 40112DSO3/G-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9323, Control Valve - HPSI Header #2 to RCS Loop 1A (Dwg.: 40112CSO3/D-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9324, Control Valve - HPSI Header #1 to RCS Loop 1A (Dwg.: 40112CSO3/D-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9325, Control Valve - LPSI Header to RCS Loop 1B (Dwg.: 40112DSO3/F-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6

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(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9326, Control Valve - HPSI Header #2 to RCS Loop 1B (Dwg.: 40112CSO3/C-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9327, Control Valve - HPSI Header #1 to RCS Loop 1B (Dwg.: 40112CSO3/B-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9328, Control Valve - LPSI Header to RCS Loop 2A (Dwg.: 40112DSO3/F-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9329, Control Valve - HPSI Header #2 to RCS Loop 2A (Dwg.: 40112CSO3/B-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9330, Control Valve - HPSI Header #1 to RCS Loop 2A (Dwg.: 40112CSO3/A-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9331, Control Valve - LPSI Header to RCS Loop 2B (Dwg.: 40112DSO3/H-4) Valve Mfg.: Target Rock								
2	B	8	GL/MO	C	BTO/OP	16	O(SO23-3-3.30)	3&6
2	B	8	GL/MO	C	PIT/RR		O(SO23-3-3.31)	3&6
* 3HV9332, Control Valve - HPSI Header #2 to RCS Loop 2B (Dwg.: 40112CSO3/F-4) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9333, Control Valve - HPSI Header #1 to RCS Loop 2B (Dwg.: 40112CSO3/F-5) Valve Mfg.: Target Rock								
2	B	2	GL/MO	C	BTO/OP	15	O(SO23-3-3.30)	3&6
2	B	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&6

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(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9334, Containment Isolation MOV - SI Tank Drain HDR to RFWT 2T005 (Dwg.: 40114DS03/F-7) Valve Mfg.: WKM								
2	A	2	GL/MO	C	AT/RR		T(SO23-V-3.13)	3&10
2	A	2	GL/MO	C	BTC/OP	12	O(SO23-3-3.30)	3&10
2	A	2	GL/MO	C	PIT/RR		O(SO23-3-3.30)	3&10
* 3HV9336, Isolation Valve - SDCS to LPSI Pump Suction (Dwg.: 40112DS03/C-7) Valve Mfg.: WKM								
2	B	16	GA/MO	OC	BTC/OP	80	O(SO23-3-3.30)	6
2	B	16	GA/MO	OC	BTO/OP	80	O(SO23-3-3.30)	6
2	B	16	GA/MO	OC	PIT/RR		O(SO23-3-3.30)	6
* 3HV9337, Isolation Valve - SDCS to LPSI Pump Suction (Dwg.: 40112DS03/C-4) Valve Mfg.: WKM								
1	A	16	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	16	GA/MO	OC	BTC/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	BTO/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9339, Isolation Valve - Shutdown Cooling System from RCS Loop 2 (Dwg.: 40112DS03/C-2) Valve Mfg.: WKM								
1	A	16	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	16	GA/MO	OC	BTC/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	BTO/CS	103	O(SO23-3-3.31)	5&6
1	A	16	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9340, Safety Injection Tank T008 Outlet Valve to RCS Loop 1A (Dwg.: 40113AS03/D-6) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	35	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9345, Safety Injection Tank T008 Vent (Dwg.: 40113AS03/G-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 3HV9347, Isolation Valve, Safety Injection Recirculation to RWST T005 (Dwg.: 40114DS03/D-3) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	32	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9348, Isolation Valve, Safety Injection Recirculation to RWST T005								
(Dwg.: 40114DSO3/D-4) Valve Mfg.: WKM								
2	B	4	GA/MO	O	BTC/OP	32	O(SO23-3-3.30)	3&6
2	B	4	GA/MO	O	PIT/RR		O(SO23-3-3.30)	3&6
* 3HV9350, Safety Injection Tank T009 Outlet Valve to RCS Loop 1B								
(Dwg.: 40113ASO3/D-2) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	32	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9355, Safety Injection Tank T007 Vent Valve								
(Dwg.: 40113ASO3/G-2) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 3HV9360, Safety Injection Tank T009 Outlet Valve to RCS Loop 2A								
(Dwg.: 40113BSO3/D-6) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	32	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9365, Safety Injection Tank T009 Vent Valve								
(Dwg.: 40113BSO3/G-6) Valve Mfg.: Target Rock								
2	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
2	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
2	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5
* 3HV9370, Safety Injection Tank T010 Outlet Valve to RCS Loop 2B								
(Dwg.: 40113BSO3/D-2) Valve Mfg.: WKM								
1	B	12	GA/MO	O	BTO/CS	35	O(SO23-3-3.31)	5&6
1	B	12	GA/MO	O	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9375, Safety Injection Tank T009 Vent Valve								
(Dwg.: 40113BSO3/G-2) Valve Mfg.: Target Rock								
1	B	1	GL/SO	C	BTO/CS	2	O(SO23-3-3.31)	5
1	B	1	GL/SO	C	FSTC/CS		O(SO23-3-3.31)	5
1	B	1	GL/SO	C	PIT/RR		O(SO23-3-3.31)	5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV9377, Isolation Valve - SDCS Bypass to LPSI Suction (Dwg.: 40112DSO3/B-4) Valve Mfg.: WKM								
1	A	10	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	10	GA/MO	OC	BTC/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	BTO/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9378, Isolation Valve - SDCS Bypass to LPSI Suction (Dwg.: 40112DSO3/B-3) Valve Mfg.: WKM								
1	A	10	GA/MO	OC	AT/RR		O(SO23-3-3.31.1)	5&6
1	A	10	GA/MO	OC	BTC/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	BTO/CS	240	O(SO23-3-3.31)	5&6
1	A	10	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	5&6
* 3HV9379, Isolation Valve - SDCS Bypass to LPSI Suction - Seal (Dwg.: 40112DSO3/B-7) Valve Mfg.: WKM								
2	B	12	GA/MO	OC	BTC/OP	14	O(SO23-3-3.30)	6
2	B	12	GA/MO	OC	BTO/OP	14	O(SO23-3-3.30)	6
2	B	12	GA/MO	OC	PIT/RR		O(SO23-3-3.31)	6
* 3HV9420, Control Valve - HPSI Header #1 to RCS Loop 2 Hot Leg (Dwg.: 40112CSO3/G-3) Valve Mfg.: Target Rock								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	6&10
2	A	3	GL/MO	C	BTO/CS	11	O(SO23-3-3.31)	6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6&10
* 3HV9434, Control Valve - HPSI Header #2 to RCS Loop 1 Hot Leg (Dwg.: 40112CSO3/E-3) Valve Mfg.: Target Rock								
2	A	3	GL/MO	C	AT/RR		T(SO23-V-3.13)	6&10
2	A	3	GL/MO	C	BTO/CS	11	O(SO23-3-3.31)	6&10
2	A	3	GL/MO	C	PIT/RR		O(SO23-3-3.31)	6&10
* 3PSV9349, SDCS Relief Valve from RCS Loop 2 (Dwg.: 40112DSO3/C-5) Valve Mfg.: Crosby								
2	C	8	RV/SA	C	RVT/RR		M(SO23-I-2.34)	15

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Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU001			(24-001-C-724), RW Tank 3T005 to Spray Pump 3P012 Suction Header					
(Dwg.: 40112AS03/D-8)			Valve Mfg.: TRW/Mission					
2	C	24	SDCK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTC/RR		M(SO23-I-6.20)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1&18 VRR-02
* S31204MU002			(24-002-C-724), RW Tank 3T006 to CS Pump 3P013 Suction Header					
(Dwg.: 40112AS03/D-7)			Valve Mfg.: TRW/Mission					
2	C	24	SDCK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTC/RR		M(SO23-I-6.20)	1&18 VRR-02
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1&18 VRR-02
* S31204MU003			(24-003-C-724), Outlet Check Valve - Containment Emergency Sump					
(Dwg.: 40112AS03/A-7)			Valve Mfg.: TRW/Mission					
2	C	24	SDCK/SA	C	CVPO/RR		T(Later)	1,5&18 VRR-03
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1,5&18 VRR-03
* S31204MU004			(24-004-C-724), Outlet Check Valve - Containment Emergency Sump					
(Dwg.: 40112AS03/B-7)			Valve Mfg.: TRW/Mission					
2	C	24	SDCK/SA	C	CVPO/RR		T(Later)	1,5&18 VRR-03
2	C	24	SDCK/SA	C	CVTO/RR		M(SO23-I-6.20)	1,5&18 VRR-03
* S31204MU006			(10-006-C-675), HPSI Pumps 3P017 and 3P018 Suction Check Valve					
(Dwg.: 40112AS03/G-7)			Valve Mfg.: Aloyco					
2	C	10	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	VRR-08
2	C	10	CK/SA	C	CVTO/RR		O(SO23-3-2.8)	VRR-08
* S31204MU008			(10-008-C-675), HPSI Pumps 3P018 and 3P019 Suction Check Valve					
(Dwg.: 40112AS03/C-7)			Valve Mfg.: Aloyco					
2	C	10	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	VRR-08
2	C	10	CK/SA	C	CVTO/RR		O(SO23-3-2.8)	VRR-08

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU012 (4-012-C-358), HPSI Pump 3P017 Discharge Check Valve (Dwg.: 40112ASO3/G-3) Valve Mfg.: Anchor/Darling								
2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU015 (4-015-C-358), HPSI Pump 3P019 Discharge Check Valve (Dwg.: 40112ASO3/C-3) Valve Mfg.: Anchor/Darling								
2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU016 (4-016-C-358), HPSI Pump 3P018 Discharge Check Valve (Dwg.: 40112ASO3/E-3) Valve Mfg.: Anchor/Darling								
2	C	4	SCK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU017 (4-017-C-553), HPSI Pumps 3P018 & 3P019 to #2 High Pressure Header (Dwg.: 40112ASO3/C-1) Valve Mfg.: Anchor/Darling								
2	C	4	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU018 (3-018-A-551), HPSI Combined Header to RCS Loop 1A Check Valve (Dwg.: 40112CSO3/D-3) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU019 (3-019-A-551), HPSI Combined Header to RCS Loop 1B Check Valve (Dwg.: 40112CSO3/C-3) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU020 (3-020-A-551), HPSI Combined Header to RCS Loop 2A Check Valve (Dwg.: 40112CSO3/B-3) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU021 (3-021-A-551), HPSI Combined Header to RCS Loop 2B Check Valve (Dwg.: 40112CSO3/F-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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San Onofre Nuclear Generating Station
([illegible] Org's: M=Maintenance, O = Operations, T = Technical)
([illegible] of Cold Shutdown Intervals, See Next Att.

[illegible]	[illegible]	[illegible] an [illegible]	[illegible]	Norm Pos.	Test Type [illegible]	Str. Time	Test Organization (Procedure)	Note and Valve Relief Requests

* [illegible] (10-024-C-406), LPSI Pump 3P015 Discharge Stop Check Valve
(Dwg.: [illegible]S03/G-[illegible] Valve Mfg.: Anchor/Darling
2 C [illegible] SCK/SA C CVTO/CS O(SO23-3-3.31.2) 5

S31204MU025 (10-025-C-406), LPSI Pump 3P016 Discharge Stop Check Valve
(Dwg.: 40112BS03/C-3) Valve Mfg.: Anchor/Darling
2 C 10 SCK/SA C CVTO/CS O(SO23-3-3.31.2) 5

* S31204MU027 (12-027-A-551), Safety Injection Headers to RCS Loop 1A Check Valve
(Dwg.: 40113AS03/C-5) Valve Mfg.: Anchor/Darling
1 AC [illegible] CK/SA C AT/RR O(SO23-3-3.31.1) 5
1 AC [illegible] CK/SA C CVTO/CS O(SO23-3-3.31.2) 5

* S31204MU029 (12-029-A-551), Safety Injection Headers to RCS Loop 1B Check Valve
(Dwg.: 40113AS03/C-4) Valve Mfg.: Anchor/Darling
1 AC [illegible] CK/SA C AT/RR O(SO23-3-3.31.1) 5
1 AC 12 CK/SA C CVTO/CS O(SO23-3-3.31.2) 5

* S31204MU031 (12-031-A-551), Safety Injection Headers to RCS Loop 2A Check Valve
(Dwg.: 40113BS03/C-5) Valve Mfg.: Anchor/Darling
1 AC 12 CK/SA C AT/RR O(SO23-3-3.31.1)
1 AC 12 CK/SA C CVTO/CS O(SO23-3-3.31.2) [illegible]

* S31204MU033 (12-033-A-551), Safety Injection Headers to RCS Loop 2B Check Valve
(Dwg.: 40113BS03/C-4) Valve Mfg.: Anchor/Darling
1 AC 12 CK/SA C AT/RR O(SO23-3-3.31.1) 5
1 AC 12 CK/SA C CVTO/CS O(SO23-3-3.31.2) 5

* S31204MU034 (2-034-C-329), HPSI 3P017 Miniflow
(Dwg.: 40112AS03/H-2) Valve Mfg.: Rockwell Edwards
2 C 2 SCK/SA C CVTO/OP T(SO23-V-3.5.4)

* S31204MU035 (2-035-C-329), HPSI 3P019 Miniflow
(Dwg.: 40112AS03/D-3) Valve Mfg.: Rockwell Edwards
2 C 2 SCK/SA C CVTO/OP T(SO23-V-3.5.4)

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU036 (2-036-C-329), HPSI 3P018 Train "A" Miniflow								
(Dwg.: 40112AS03/F-3) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31204MU037 (2-037-C-329), LPSI Pump 3P015 Miniflow Stop Check Valve								
(Dwg.: 40112BS03/G-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31204MU040 (12-040-A-551), Safety Injection Tank T008 Outlet Check Valve								
(Dwg.: 40113AS03/D-6) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S31204MU041 (12-041-A-551), Safety Injection Tank T007 Outlet Check Valve								
(Dwg.: 40113AS03/D-2) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S31204MU042 (12-042-A-551), Safety Injection Tank T009 Outlet Check Valve								
(Dwg.: 40113BS0[illegible] Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	[illegible]	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU043 (12-043-A-551), Safety Injection Tank T010 Outlet Check Valve								
(Dwg.: 40113BSO3/D-2) Valve Mfg.: Anchor/Darling								
1	AC	12	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVPO/CS		O(SO23-3-3.31.2)	1,5&18 VRR-11
1	AC	12	CK/SA	C	CVTO/RR		M(SO23-I-6.160)	1,5&18 VRR-11
* S31204MU063 (2-063-C-329), LPSI Pump 3P016 Miniflow Stop Check Valve								
(Dwg.: 40112BSO3/D-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31204MU072 (8-072-A-552), LPSI to RCS Loop 1A Check Valve								
(Dwg.: 40112DSO3/J-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU073 (8-073-A-552), LPSI to RCS Loop 1B Check Valve								
(Dwg.: 40112DSO3/F-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU074 (8-074-A-552), LPSI to RCS Loop 2A Check Valve								
(Dwg.: 40112DSO3/F-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU075 (8-075-A-552), LPSI to RCS Loop 2B Check Valve								
(Dwg.: 40112DSO3/H-2) Valve Mfg.: Anchor/Darling								
1	AC	8	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	8	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU077 (16-077-C-645), LPSI Pump 3P016 Suction Header Check Valve								
(Dwg.: 40112BSO3/E-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU084 (16-084-C-645), LPSI Pump 3P015 Suction Check Valve								
(Dwg.: 40112ASO3/G-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12
* S31204MU087 (16-087-C-675), Containment Spray Pump 3P013 Suction Check Valve								
(Dwg.: 40114ASO3/F-6) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU088 (16-088-C-675), Containment Spray Pump 3P012 Suction Check Valve								
(Dwg.: 40114ASO3/C-6) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU099 (2-099-C-334), SI Tank Drain Header to RFWT 3T005 Contmt Isolation Valve								
(Dwg.: 40114DSO3/F-6) Valve Mfg.: Kerotest								
2	A	2	GL/M	C	AT/RR		T(SO23-V-3.13)	10
* S31204MU104 (2-104-C-329), HPSI 3P018 Train "B" Miniflow								
(Dwg.: 40112ASO3/E-2) Valve Mfg.: Rockwell Edwards								
2	C	2	SCK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31204MU152 (3-152-A-551), To #2 HPSI Header								
(Dwg.: 40111ASO3/F-5) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	
* S31204MU155 (3-155-C-551), HPSI Header #1 to RCS Loop #2 Hot Leg								
(Dwg.: 40112CSO2/F-7) Valve Mfg.: Anchor/Darling								
2	C	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5
* S31204MU156 (3-156-A-551), HPSI Header #1 to RCS Loop #2 Hot Leg Inlet Check Valve								
(Dwg.: 40112DSO3/B-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		O(SO23-3-3.31.1)	5
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31204MU157 (3-157-A-550), HPSI Header #2 to RCS Loop #1 Hot Leg								
(Dwg.: 40112CSO3/E-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	5&10
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5&10
* S31204MU158 (3-158-A-550), HPSI Header #1 to RCS Loop #2 Hot Leg								
(Dwg.: 40112CSO3/G-2) Valve Mfg.: Anchor/Darling								
1	AC	3	CK/SA	C	AT/RR		T(SO23-V-3.13)	5&10
1	AC	3	CK/SA	C	CVTO/CS		O(SO23-3-3.31.2)	5&10
* S31204MU199 (16-159-C-645), LPSI Pump 3P016 Suction Header Check Valve								
(Dwg.: 40112ASO3/D-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12
* S31204MU201 (16-201-C-645), LPSI Pump 3P015 Suction Header Check Valve								
(Dwg.: 40112BSO3 "-7) Valve Mfg.: Anchor/Darling								
2	C	16	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1 VRR-12
2	C	16	CK/SA	C	CVTO/RR		T(SO23-SPT-8)	1 VRR-12
** System: Salt Water Cooling								
* 3HV6200, SWCS Pump 3P112 Discharge Valve								
(Dwg.: 40126ASO3/G-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 3HV6201, SWCS Pump 3P113 Discharge Valve								
(Dwg.: 40126ASO3/E-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 3HV6202, SWCS Pump 3P307 Discharge Valve								
(Dwg.: 40126BSO3/G-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV6203, SWCS Pump 3P114 Discharge Valve (Dwg.: 40126BSO3/E-3) Valve Mfg.: Fisher								
3	B	30	BTF/AO	OC	BTO/OP	18	O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	FSTO/OP		O(SO23-3-3.30)	
3	B	30	BTF/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 3HV6494, SWCS from CCW Heat Exchanger E002B to Overflow at Seawall (Dwg.: 40127CSO3/D-3) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP		O(SO23-3-3.30)	6,7
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6,7
* 3HV6495, Salt Water from CCW Heat Exchanger E002B (Dwg.: 40127CSO3/E-2) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP	75	O(SO23-3-3.30)	6
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6
* 3HV6496, SWCS from CCW Heat Exchanger E001A to Overflow at Seawall (Dwg.: 40127CSO3/C-3) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP		O(SO23-3-3.30)	6,7
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6,7
* 3HV6497, Salt Water from CCW Heat Exchanger E001A (Dwg.: 40127CSO3/B-2) Valve Mfg.: Fisher								
3	B	30	BTF/MO	C	BTO/OP	75	O(SO23-3-3.30)	6
3	B	30	BTF/MO	C	PIT/RR		O(SO23-3-3.30)	6
* S31413MU009 (30-009-D-722) SWCS Pump 3P112 Discharge Check Valve (Dwg.: 40126ASO3/G-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU010 (30-010-D-722), SWCS Pump 3P113 Discharge Check Valve (Dwg.: 40126ASO3/D-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU011 (30-011-D-722), SWCS Pump 3P307 Discharge Check Valve (Dwg.: 40126BSO3/G-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	

UNIT 3
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Test Str. Time	Organization (Procedure)	Notes and Valve Relief Requests
* S31413MU012 (30-012-D-722), SWCS Pump 3P114 Discharge Check Valve (Dwg.: 40126BSO3/E-4) Valve Mfg.: TRW/Mission								
3	C	30	SDCK/SA	OC	CVTC/OP		T(SO23-V-3.5.4)	
3	C	30	SDCK/SA	OC	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU013 (1-013-D-691), SWCS Pump 3P112 Recirculation to Cyclone Separator (Dwg.: 40126ASO3/F-4) Valve Mfg.: Controlmatics								
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU016 (1-016-D-691), SWCS Pump 3P113 Recirculation to Cyclone Separator (Dwg.: 40126ASO3/D-4) Valve Mfg.: Controlmatics								
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU021 (1-021-D-691), SWCS Pump 3P307 Recirculation to Cyclone Separator (Dwg.: 40126BSO3/F-4) Valve Mfg.: Controlmatics								
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU024 (1-024-D-691), SWCS Pump 3P114 Recirculation to Cyclone Separator (Dwg.: 40126BSO3/D-4) Valve Mfg.: Controlmatics								
3	C	1	CK/SA	C	CVTO/OP		T(SO23-V-3.5.4)	
* S31413MU047 (1-047-D-691), Check Valve Service Water Supply to Salt Water Pump 3P112 (Dwg.: 40126ASO3/G-7) Valve Mfg.:								
3	C		CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
* S31413MU048 (1-048-D-691), Check Valve Service Water Supply to Salt Water Pump 3P113 (Dwg.: 40126ASO3/D-7) Valve Mfg.:								
3	C		CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
* S31413MU049 (1-049-D-691), Check Valve Service Water Supply to Salt Water Pump 3P307 (Dwg.: 40126BSO3/G-7) Valve Mfg.:								
3	C		CK/SA	C	CVTC/OP		T(SO23-SPT-7)	

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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31413MU050 (1-050-D-691), Check Valve Service Water Supply to Salt Water Pump 3P114 (Dwg.: 40126BSO3/D-7) Valve Mfg.:								
3	C		CK/SA	C	CVTC/OP		T(SO23-SPT-7)	
** System: St em								
* 3HV4053, S/G E089 Blowdown Isolation Valve (Dwg.: 40141ASO3/C-2) Valve Mfg.: Fisher								
2	B	6	GL/AO	O	BTC/OP	9	O(SO23-3-3.30)	3
2	B	6	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 3HV4054, S/G E088 Blowdown Isolation Valve (Dwg.: 40141ASO3/F-2) Valve Mfg.: Fisher								
2	B	6	GL/AO	O	BTC/OP	9	O(SO23-3-3.30)	3
2	B	6	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	6	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 3HV4057, S/G E089 Sample Isolation Valve (Dwg.: 40141ASO3/B-2) Valve Mfg.: Fisher								
2	B	3/4	GL/AO	O	BTC/OP	5	O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 3HV4058, S/G E088 Sample Isolation Valve (Dwg.: 40141ASO3/F-2) Valve Mfg.: Fisher								
2	B	3/4	GL/AO	O	BTC/OP	5	O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	FSTC/OP		O(SO23-3-3.30)	3
2	B	3/4	GL/AO	O	PIT/RR		O(SO23-3-3.30)	3
* 3HV8200, Steam from Steam Generator E089 to AFW Pump (Dwg.: 40141CSO3/E-3) Valve Mfg.: Fisher								
2	B	4	GL/AO	OC	BTO/OP	4	O(SO23-3-3.30)	
2	B	4	GL/AO	OC	FSTO/OP		O(SO23-3-3.30)	
2	B	4	GL/AO	OC	PIT/RR		O(SO23-3-3.30)	

UNIT 3
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Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3HV8201, Steam from Steam Generator E088 to AFW Pump (Dwg.: 40141DSO3/E-3) Valve Mfg.: Fisher								
2	B	4	GL/AO	OC	BTO/OP	4	O(SO23-3-3.30)	
2	B	4	GL/AO	OC	FSTO/OP		O(SO23-3-3.30)	
2	B	4	GL/AO	OC	PIT/RR		O(SO23-3-3.30)	
* 3HV8204, Steam Generator E089 Main Steam Isolation Valve (MSIV) (Dwg.: 40141CSO3/B-2) Valve Mfg.: WKM								
2	B	40	GA/HY	O	BTC/CS	8	O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	BTPC/OP		O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	FSTC/CS		O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	PIT/RR		O(SO3-3-3.17)	3&9
* 3HV8205, Steam Generator E088 Main Steam Isolation Valve (MSIV) (Dwg.: 40141DSO3/B-3) Valve Mfg.: WKM								
2	B	40	GA/HY	O	BTC/CS	8	O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	BTPC/OP		O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	FSTC/CS		O(SO3-3-3.17)	3&9
2	B	40	GA/HY	O	PIT/RR		O(SO3-3-3.17)	3&9
* 3HV8419, Main Steam Dump to Atmosphere (Dwg.: 40141DSO3/E-6) Valve Mfg.: Contr Comp I								
2	B	8	AV/AO	C	BTC/CS	15	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTO/CS	60	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTPO/OP		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	FSTC/CS		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	PIT/RR		O(SO23-3-3.31)	3&11 VRR-25
* 3HV8421, Main Steam Dump to Atmosphere (Dwg.: 40141CSO3/F-6) Valve Mfg.: Contr Comp I								
2	B	8	AV/AO	C	BTC/CS	15	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTO/CS	60	O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	BTPO/OP		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	FSTC/CS		O(SO23-3-3.31)	3&11 VRR-25
2	B	8	AV/AO	C	PIT/RR		O(SO23-3-3.31)	3&11 VRR-25
* 3PSV8401, Main Steam Relief Val ; (Dwg.: 40141DSO3/G-7) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2

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Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3PSV8402, Main Steam Relief Valve (Dwg.: 40141DSO3/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8403, Main Steam Relief Valve (Dwg.: 40141DSO3/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8404, Main Steam Relief Valve (Dwg.: 40141DSO3/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8405, Main Steam Relief Valve (Dwg.: 40141DSO3/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8406, Main Steam Relief Valve (Dwg.: 40141DSO3/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8407, Main Steam Relief Valve (Dwg.: 40141DSO3/F-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8408, Main Steam Relief Valve (Dwg.: 40141 SO3/F-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8409, Main Steam Relief Valve (Dwg.: 40141DSO3/F-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8410, Main Steam Relief Valve (Dwg.: 40141CSO3/G-7) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8411, Main Steam Relief Valve (Dwg.: 40141CSO3/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2

UNIT 2
10/16/91
Inservice Testing Program for Valves
San Onofre Nuclear Generating Station
(Test Org's: M=Maintenance, O = Operations, T = Technical)
Discussion of Cold Shutdown Intervals, See Next Att.

Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* 3PSV8412, Main Steam Relief Valve (Dwg.: 40141CSO3/G-6) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8413, Main Steam Relief Valve (Dwg.: 40141CSO3/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8414, Main Steam Relief Valve (Dwg.: 40141CSO3/G-5) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8415, Main Steam Relief Valve (Dwg.: 40141CSO3/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8416, Main Steam Relief Valve (Dwg.: 40141CSO3/G-4) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8417, Main Steam Relief Valve (Dwg.: 40141CSO3/G-3) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* 3PSV8418, Main Steam Relief Valve (Dwg.: 40141CSO3/G-3) Valve Mfg.: Crosby								
2	C	6	SV/SA	C	RVT/RR		M(SO23-I-2.5)	2
* S31301MU003 (4-003-D-620), Check Valve on Steam Supply from E088 to AFP Turbine K007 (Dwg.: 40141CSO3/F-1) Valve Mfg.: Anchor/Darling								
3	C	4	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-18
3	C	4	CK/SA	C	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-18
3	C	4	CK/SA	C	CVTO/CS		O(Later)	1&18 VRR-18
* S31301MU005 (4-005-D-620), Check Valve on Steam Supply from E089 to AFP Turbine K007 (Dwg.: 40141CSO3/E-2) Valve Mfg.: Anchor/Darling								
3	C	4	CK/SA	C	CVPO/OP		T(SO23-V-3.5.4)	1&18 VRR-18
3	C	4	CK/SA	C	CVTC/RR		M(SO23-I-6.160)	1&18 VRR-18
3	C	4	CK/SA	C	CVTO/CS		O(Later)	1&18 VRR-18

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Code Class	Sec XI Cat	Size (in.)	Valve and Actuator Type	Norm Pos.	Test Type and Mode	Str. Time	Test Organization (Procedure)	Notes and Valve Relief Requests
* S31301MU027 (3/4-027-P-636), Instrument Air Supply Check Valve for 3HV8419								
(Dwg.: 40141S03D/D-6) Valve Mfg.: Anchor/Darling								
2	AC	3/4	CK/SA	C	AT/RR		O(S023-3-2.18.1)	12
2	AC	3/4	CK/SA	C	CVTC/OP		O(S023-3-3.30)	12
* S31301MU034 (3/4-034-P-536), Instrument Air Supply Check Valve for 3HV8421								
(Dwg.: 40141S03C/E-5) Valve Mfg.: Anchor/Darling								
2	AC	3/4	CK/SA	C	AT/RR		O(S023-3-2.18.1)	12
2	AC	3/4	CK/SA	C	CVTC/OP		O(S023-3-3.30)	12
** System: Sumps and Drains								
* 3HV5803, Containment Sump to Radwaste Sump								
(Dwg.: 40117AS03/E-2) Valve Mfg.: WKM								
2	A	3	GA/MO	O	AT/RR		T(S023-V-3.13)	3,5,6&10
2	A	3	GA/MO	O	BTC/OP	18	O(S023-3-3.30)	3,5,6&10
2	A	3	GA/MO	O	PIT/RR		O(S023-3-3.30)	3,5,6&10
* 3HV5804, Containment Sump to Radwaste Sump Isolation Valve								
(Dwg.: 40117AS03/E-1) Valve Mfg.: Fisher								
2	A	3	GA/AO	O	AT/RR		T(S023-V-3.13)	3,5&10
2	A	3	GA/AO	O	BTC/OP	5	O(S023-3-3.30)	3,5&10
2	A	3	GA/AO	O	FSTC/OP		O(S023-3-3.30)	3,5&10
2	A	3	GA/AO	O	PIT/RR		O(S023-3-3.30)	3,5&10

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Auxiliary Feedwater

* S31305MU121 (6-121-D-598), AFP 3P140 Supply to S/G E089
Exercising this valve while the plant is at power would result in placing unnecessary thermal stresses on the feedwater piping, which could result in premature failure of this piping.

* S31305MU126 (6-126-D-598), AFP 3P141 Discharge Check Valve
Same as S31305MU121.

* S31305MU532 (6-532-D-598), AFP 3P504 Discharge Check Valve
Same as S31305MU121.

* S31305MU547 (6-547-D-598), AFP 3P140 Discharge Check Valve
Same as S31305MU121.

** System: Boric Acid Makeup

* 3HV9235, BAMU Tank T072 to Gravity Feed to Charging Pump Suction
Opening this valve would result in injecting highly concentrated boric acid into the reactor coolant system, causing plant shutdown.

* 3HV9240, BAMU Tank T071 to Charging Suction Header Control Valve
Same as HV-9235.

* 3HV9247, BAMU Pump to Charging Pump Suction Control Valve
Same as HV-9235.

* S31218MU033 (3-033-D-675), Boric Acid Makeup Pump 3P175 Discharge Check Valve
Full stroke exercising of this valve during plant power operation would result in over-boration of the reactor coolant system and plant shutdown.

* S31218MU035 (3-035-D-675), Boric Acid Makeup Pump 3P174 Discharge Check Valve
Same as S31218MU033.

** System: Chemical and Volume Control

* 3HV9200, Charging Pumps to Regenerative Heat Exchanger E063
Exercising while the plant is at power would isolate normal charging to the RCS. This would result in non-compliance with Technical Specification 3.1.2.2, which requires two flow paths for boration during power operation.

* 3HV9205, Regenerative Heat Exchanger E063 to Letdown Heat Exchanger
Exercising this valve during power operation would result in unnecessary thermal transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

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JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3LV0227B, VCT Outlet Valve
Closing this valve requires shifting charging pump suction and injecting highly concentrated boric acid into the RCS, causing plant shutdown.

* 3TV9267, Letdown Containment Isolation Valve
Same as HV-9205.

* S31208MU015 (4-015-C-675), VCT to Charging Pump Suction Check Valve
Same as LV-0227B.

* S31208MU082 (3-082-C-675), Grav Feed - BAMU Tanks to Charging Pump 3P190 Suction
Same as HV9235.

* S31208MU083 (3-083-C-675), BAMU Pumps to Charging Pumps Suction Header
Same as HV9235.

* S31208MU130 (2-130-C-334), Contmt Isol. - Chg Pump Disch to Aux. Spray Regen HX Bypass
Exercising this valve while the plant is at power would result in unnecessary thermal transients on the pressurizer spray nozzle.

** System: Component Cooling Water

* 3HV6211, CCW Non-Critical Loop to Containment Isolation Valve
Exercising this valve during operation would secure or direct cooling water flow from RCP seals, which could result in seal damage and plant shutdown.

* 3HV6212, CCW From Heat Exchanger E001A to Non-Critical Loop
Same as HV-6211.

* 3HV6213, Component Cooling Water Discharge to Non-Critical Loop
Same as HV-6211.

* 3HV6216, Isolation Valve - CCW Non-Critical Loop from Containment
Same as HV-6211.

* 3HV6218, CCW Pump Suction from Non-Critical Loop
Same as HV-6211.

* 3HV6219, CCW Pump Suction from Non-Critical Loop
Same as HV-6211.

* 3HV6223, Isolation Valve - CCW Non-Critical Loop Containment Inlet
Same as HV-6211.

* 3HV6236, Containment Isolation - CCW Non-Critical Loop Return
Same as HV-6211.

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JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV6500, Component Cooling Water from SDCS Heat Exchanger E003
Same as HV-6211.

* 3HV6501, Component Cooling Water from SDCS Heat Exchanger E004
Same as HV 6211.

* S31203MU101 (28-101-D-725), CCW Pump 3P024 Discharge Check Valve
Full stroke exercising of this valve during power operation would require diverting CCW from the Reactor Coolant Plant seals, which would result in seal damage and plant shutdown.

* S31203MU102 (28-102-D-725), CCW Pump 3P026 Discharge Check Valve
Same as S31203MU101.

* S31203MU103 (28-103-D-725), CCW Pump 3P025 Discharge Check Valve
Same as S31203MU101.

* S31203MU264 (1-264-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A
Stroke Test requires placing the affected CCW loop out of service.

* S31203MU265 (1-265-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T003A
Same as S31203MU264.

* S31203MU266 (1-266-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B
Same as S31203MU264.

* S31203MU267 (1-267-D-627), Nitrogen Supply to Component Cooling Water Surge Tank T004B
Same as S31203MU264

* S31203MU268 (1-268-D-627), Nuclear Plant Service Water Supply to CCW Loop A
Same as S31203MU264.

* S31203MU269 (1-269-D-627), Nuclear Plant Service Water Supply to CCW Loop B
Same as S31203MU264.

** System: Condensate and Feedwater

* 3HV1105, S/G E089 Feedwater Bypass Valve
Exercising this valve during plant operation would disturb steam generator level control and could result in plant shutdown.

* 3HV1106, S/G E088 Feedwater Bypass Valve
Same as HV 1105.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV4047, Feedwater Block Valve - Steam Generator E08E
Full stroke exercising this valve during power operation would result in loss of feedwater flow to the steam generator, which could result in a plant shutdown.

* 3HV4048, Feedwater Isolation Valve - Steam Generator E088
Same as HV-4047.

* 3HV4051, Feedwater Block Valve - Steam Generator E089
Same as HV-4047.

* 3HV4052, Feedwater Isolation Valve - Steam Generator E089
Same as HV-4047.

* S31305MU036 (20-036-C-609), Main Feed Check Valve at Steam Generator E089
This valve cannot be stroked during any mode in which main feed must remain uninterrupted. It therefore can only be stroked open when main feed is initiated following a plant shutdown.

* S31305MU124 (6-124-C-599), AFW Check Valve at Steam Generator E089
Exercising this valve while the plant is at power would result in placing unnecessary thermal stresses on the feedwater piping, which could result in premature failure of this piping.

* S31305MU129 (20-129-C-609), Main Feed Check Valve at Steam Generator E088
This valve cannot be stroked during any mode in which main feed must remain uninterrupted. It therefor can only be stroked open when main feed is initiated following a plan. shutdown.

* S31305MU448 (6-448-C-599), AFW Check Valve at Steam Generator E088
Same as S31305MU124.

** System: Containment HVAC (Normal)

* 3HV9948, Containment Purge Supply
See Valve Relief Request No. 19. This valve is passive except in Modes 5 and 6, at which time it is tested. In addition, exercising this valve during plant power operation would result in non-compliance with the Technical Specifications.

* 3HV9949, Containment Purge Supply
Same as HV-9948.

* 3HV9950, Containment Purge Exhaust
Same as HV-9948.

* 3HV9951, Containment Purge Exhaust
Same as HV-9948.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Containment Spray

* 3HV8150, Isolation Valve - SDCS Heat Exchanger E004 to LPSI Header
Applying power or opening this valve while the plant is at power would result in non-compliance with the Technical Specification. Opening this valve could defeat both trains of LPSI.

* 3HV8151, Isolation Valve - SDCS Heat Exchanger E003 to LPSI Header
Same as HV-8150.

* S31206MU004 (8-004-C-406), Spray Header #1 Containment Isolation Stop Check Valve
Exercising this valve with flow either during operation or cold shutdown would result in a spraydown of the containment building.

* S31206MU006 (8-006-C-406), Spray Header #2 Containment Isolation Stop Check Valve
Same as S31206MU004.

* S31206MU012 (8-012-C-406), Spray Pump 3P012 Discharge Stop Check Valve
Full stroke exercising of this valve while the plant is at power would require disabling both trains of LPSI.

* S31206MU014 (8-014-C-406), Spray Pump 3P013 Discharge Stop Check Valve
Same as S31206MU012.

* S31206MU029 (8-029-C-645), Spray Pump 3P012 Discharge to SDCS HV E004 Check Valve
Same as S31206MU012.

* S31206MU030 (8-030-C-645), Spray Pump 3P012 Discharge to SDCS HV E003 Check Valve
Same as S31206MU012.

** System: Fire Protection

* 3HV5686, Containment Isol. - Fire Protection (Outside Containment)
Exercising this valve during plant operation will activate the Fire Protection system in the Unit 3 Containment building.

** System: Fuel Stor. Pool & Refueling

* 3LV0227C, RWST to Charging Pump Suction
Opening this valve would result in injecting highly concentrated boric acid into the reactor coolant system, causing plant shutdown.

* S31213MU052 (6-052-C-675), RWST T006 to Charging Pump Suction Header
Same as LV-0227C.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

** System: Reactor Coolant

* 3HV0296A, Reactor Head Vent
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 3HV0296B, Reactor Head Vent
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 3HV0297A, Pressurizer Vent Valve
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 3HV0297B, Pressurizer Vent Valve
This valve is part of the Reactor Coolant system Boundary isolation. Opening this valve while the Reactor Coolant System is pressurized would release Reactor Coolant to the vent system. Further, power is normally removed from the solenoid.

* 3HV0298, Vent to Contmt from Reactor Head/Pressurizer
This valve is not considered accessible during power operation. Further, power is normally removed from the solenoid.

* 3HV0299, Quench Tank Inlet from Reactor Head/Pressurizer Vent
This valve is normally inaccessible during power operation. Further, power is normally removed from the solenoid.

* 3HV9201, Regenerative Heat Exchanger E063 to Auxiliary Spray
Exercising this valve while the plant is at power would result in unnecessary thermal transients and stress on the pressurizer spray nozzle.

* 3HV9202, Regenerative Heat Exchanger E063 to RCS Loop 2A
This valve must remain open during power operation in order to ensure consistency with assumptions made regarding system flow to the RCS cold legs in the accident analysis and to comply with the intent of LCO 3.5.2.

* 3HV9203, Regenerative Heat Exchanger E063 to RCS Loop 1A
Same as HV-9202.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV9204, RCS Loop 2B to Regenerative Heat Exchanger E063
Exercising this valve during power operation would result in unnecessary thermal stress transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

* 3HV9217, RCS Bleed Off to Volume Control Tank
Exercising this valve could result in Reactor Coolant Pump seal failure and subsequent reactor shutdown.

* 3HV9218, RCS Bleed Off to VCT Isolation Valve Inside Containment
Same as HV-9217.

* 3TV0221, Letdown Isolation Valve
Exercising this valve during power operation would result unnecessary thermal transients on the regenerative heat exchanger and reactor coolant system charging nozzles.

* S31201MU019 (2-019-A-554), Auxiliary Spray Check Valve
Exercising this valve while the plant is at power would result in unnecessary thermal transients on the pressurizer spray nozzle.

* S31201MU020 (2-020-A-554), Charging Line Check Valve to RCS Loop 2A
This valve cannot be tested without closing HV-9203 (discussed elsewhere in this table).

* S31201MU021 (2-021-A-554), Charging Line Check Valve to RCS Loop 1A
This valve cannot be tested without closing HV-9202 (discussed elsewhere in this table).

* S31201MU129 (2-129-A-554), Auxiliary Spray to RCS From Charging Pumps
Same as S31201MU019.

* S31201MU200 (14-200-C-645), Pump 3P016 Suction Check Valve
This valve can only be exercised when plant is on shutdown cooling.

* S31201MU202 (14-202-C-645), LPSI Pump Suction Check Valve
Same as S31201MU200.

** System: Resp. & Service Air System

* 3HV5388, Containment Isolation Valve for Instrument Air
Exercising this valve during plant power operation isolates instrument air to the Containment building and could result in a plant shutdown.

** System: Safety Injection

* 3HV0396, Flow Control Valve - LPSI Pumps to Shutdown Cooling System
Full stroke testing of this valve during power operation would result in non-compliance with Technical Specification 3/4.5.2, which requires this valve to be closed with power to the valve operator removed.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV8152, Isolation Valve - SDCS Heat Exchanger E004 Inlet
Same as HV-0396.

* 3HV8153, Isolation Valve - SDCS Heat Exchanger E003 Inlet
Same as HV-0396.

* 3HV8160, Flow Control Valve - SDCS Heat Exchanger Bypass
Full stroke exercising of this valve during power operation would result in non-compliance with Technical Specification 3/4.5.2, which requires this valve to be open with power removed.

* 3HV8161, Block Valve - LPSI to SDCS Heat Exchanger Bypass
Same as HV-8160.

* 3HV8162, Block Valve - LPSI Pump 3P015 Miniflow
Same as HV-8160.

* 3HV8163, Block Valve - LPSI Pump 3P016 Miniflow
Same as HV-8160.

* 3HV9337, Isolation Valve - SDCS to LPSI Pump Suction
This valve is required by Technical Specification 3/4.5.2 to be interlocked to prevent opening whenever reactor coolant system pressure exceeds 376 psia.

* 3HV9339, Isolation Valve - Shutdown Cooling System from RCS Loop 2
Same as HV-9337.

* 3HV9340, Safety Injection Tank T008 Outlet Valve to RCS Loop 1A
Restoring power to this valve or opening this valve while the plant is at power would result in non-compliance with the Technical Specifications.

* 3HV9345, Safety Injection Tank T008 Vent
During power operation, Technical Specifications require power to be locked out for this valve. This prevents inadvertent pressurization of the SIT.

* 3HV9350, Safety Injection Tank T009 Outlet Valve to RCS Loop 1B
Same as HV-9340.

* 3HV9355, Safety Injection Tank T007 Vent Valve
Same as HV-9345.

* 3HV9360, Safety Injection Tank T009 Outlet Valve to RCS Loop 2A
Same as HV-9340.

* 3HV9365, Safety Injection Tank T009 Vent Valve
Same as HV-9345.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV9370, Safety Injection Tank T010 Outlet Valve to RCS Loop 2B
Same as HV-9340.

* 3HV9375, Safety Injection Tank T009 Vent Valve
Same as HV-9345.

* 3HV9377, Isolation Valve - SDCS Bypass to LPSI Suction
Same as HV-9337.

* 3HV9378, Isolation Valve - SDCS Bypass to LPSI Suction
Same as HV-9337.

* 3HV9420, Control Valve - HPSI Header #1 to RCS Loop 2 Hot Leg
Same as HV-0396.

* 3HV9434, Control Valve - HPSI Header #2 to RCS Loop 1 Hot Leg
Same as HV-0396.

* S31204MU012 (4-012-C-358), HPSI Pump 3P017 Discharge Check Valve
This valve cannot be exercised while the plant is at power because the HPSI pump cannot overcome RCS pressure. To exercise disc to fully open position requires 200 GPM.

* S31204MU015 (4-015-C-358), HPSI Pump 3P019 Discharge Check Valve
Same as S31204MU012.

* S31204MU016 (4-016-C-358), HPSI Pump 3P018 Discharge Check Valve
Same as S31204MU012.

* S31204MU017 (4-017-C-553), HPSI Pumps 3P018 & 3P019 to #2 High Pressure Header
Same as S31204MU012.

* S31204MU018 (3-018-A-551), HPSI Combined Header to RCS Loop 1A Check Valve
Exercising this valve while the plant is at power would result in non-compliance with Technical Specification 3/4.3.5.2.

* S31204MU019 (3-019-A-551), HPSI Combined Header to RCS Loop 1B Check Valve
Same as S31204MU018.

* S31204MU020 (3-020-A-551), HPSI Combined Header to RCS Loop 2A Check Valve
Same as S31204MU018.

* S31204MU021 (3-021-A-551), HPSI Combined Header to RCS Loop 2B Check Valve
Same as S31204MU018.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* S31204MU024 (10-024-C-406), LPSI Pump 3P015 Discharge Stop Check Valve
While the plant is at power, LPSI pumps cannot overcome RCS pressure. Additionally, aligning the system discharge to the RWST would defeat both trains of LPSI.

* S31204MU025 (10-025-C-406), LPSI Pump 3P016 Discharge Stop Check Valve
Same as S31204MU024.

* S31204MU027 (12-027-A-551), Safety Injection Headers to RCS Loop 1A Check Valve
During power operation, there is no full flow path available to stroke test this valve. Neither the LPSI nor HPSI pumps can overcome the RCS pressure. Requires 2000 gpm for full stroke.

* S31204MU029 (12-029-A-551), Safety Injection Headers to RCS Loop 1B Check Valve
Same as S31204MU027.

* S31204MU031 (12-031-A-551), Safety Injection Headers to RCS Loop 2A Check Valve
Same as S31204MU027.

* S31204MU033 (12-033-A-551), Safety Injection Headers to RCS Loop 2B Check Valve
Same as S31204MU027.

* S31204MU040 (12-040-A-551), Safety Injection Tank T008 Outlet Check Valve
Opening this valve during power operation is not possible against normal RCS operating pressure. A partial stroke test is the only test possible during Cold Shutdown due to system configuration. See Valve Relief Request Number 11.

* S31204MU041 (12-041-A-551), Safety Injection Tank T007 Outlet Check Valve
Same as S31204MU040.

* S31204MU042 (12-042-A-551), Safety Injection Tank T009 Outlet Check Valve
Same as S31204MU040.

* S31204MU043 (12-043-A-551), Safety Injection Tank T010 Outlet Check Valve
Same as S31204MU040.

* S31204MU072 (8-072-A-552), LPSI to RCS Loop 1A Check Valve
There is no flow path to exercise this valve during power operation. LPSI pumps cannot overcome RCS pressure while the plant is at power.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* S31204MU073 (8-073-A-552), LPSI to RCS Loop 1B Check Valve
Same as S31204MU072.

* S31204MU074 (8-074-A-552), LPSI to RCS Loop 2A Check Valve
Same as S31204MU072.

* S31204MU075 (8-075-A-552), LPSI to RCS Loop 2B Check Valve
Same as S31204MU072.

* S31204MU087 (16-087-C-675), Containment Spray Pump 3P013 Suction Check Valve
Same as S31206MU012.

* S31204MU088 (16-088-C-675), Containment Spray Pump 3P012 Suction Check Valve
Same as S31206MU012.

* S31204MU152 (3-152-A-551), To #2 HPSI Header
Valve cannot be stroked at power because the HPSI pumps cannot overcome Reactor Coolant System pressure. Additionally, opening the HPSI Header Isolation Valve during power operation would result in non-compliance with Technical Specification 3/4.5.2.

* S31204MU155 (3-155-C-551), HPSI Header #1 to RCS Loop #2 Hot Leg
Exercising this valve while the plant is at power would result in non-compliance with Technical Specification 3/4.3.5.2. In addition, while the plant is at power, HPSI pumps cannot overcome RCS pressure.

* S31204MU156 (3-156-A-551), HPSI Header #1 to RCS Loop #2 Hot Leg Inlet Check Valve
Same as S31204MU155.

* S31204MU157 (3-157-A-550), HPSI Header #2 to RCS Loop #1 Hot Leg
Same as S31204MU155.

* S31204MU158 (3-158-A-550), HPSI Header #1 to RCS Loop #2 Hot Leg
Same as S31204MU155.

** System: Steam

* 3HV8204, Steam Generator E089 Main Steam Isolation Valve (MSIV)
Full stroke exercising at full plant power would cause a loss of 50 % of our heat removal from the primary coolant system, a reactor trip on assymetric power in the core and actuation of the steam and pressurizer (primary) reliefs.

* 3HV8205, Steam Generator E088 Main Steam Isolation Valve (MSIV)
Same as HV-8204.

UNIT 3

JUSTIFICATION FOR VALVES NOT TESTED QUARTERLY

* 3HV8419, Main Steam Dump to Atmosphere
Full stroke exercising this valve during power operation could result in a reactor plant transient due to energy released via the steam dump.

* 3HV8421, Main Steam Dump to Atmosphere
Same as HV-C419.

ASME XI

TABLE IWV-3510-1

CATEGORY C - SAFETY AND RELIEF VALVES

Testing Schedule

Time Period	Number of Valves to be Tested
Startup through 1st refueling	Minimum of $N_1/60$ x total valves in this category [Note (1)]
1st refueling through 2nd refueling	Additional valves to make cumulative tested at least $N_2/60$ x total valves in this category [Note(1)]
2nd refueling through 3rd refueling etc.	Additional valves to make cumulative tested at least $N_3/60$ x total valves in this category, etc. [Note(1)]

NOTE:

(1) N_1, N_2, N_3, etc., are the numbers of months from startup to first refueling, second refueling, third refueling, etc. When N is a number larger than 60, all valves which have not been tested during the preceding 5 year period shall be tested. The following period shall then be considered to be the same as "startup to first refueling" for purposes of determining test frequency, with the added requirement that at each refueling all valves which have not been tested during the preceding 5 year period shall be tested. The subsequent period will be considered the same as the first refueling to the second refueling, etc., with N determined by counting months from the new starting point.

VALVE RELIEF REQUEST INDEX

VALVE RELIEF REQUEST INDEX
(Continued)

VALVE RELIEF REQUEST INDEX
(Continued)

VALVE RELIEF REQUEST NO. 1

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Reactor Coolant system check valve 3-152-A-551 was moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 2

System: Safety Injection

Components:

Safety Injection System Check Valves:

24-001-C-724, RW Tank 2T005 to Spray Pump 2P012 Suction Header,
24-002-C-724, RW Tank 2T005 to Spray Pump 2P013 Suction Header

Class: 2

Function: These valves prevent back-flow from the High Pressure Safety Injection Suction Header, Low Pressure Safety Injection Suction Header and Spray Pump Suction header to the Refueling Water Storage Tanks (RWST's).

Test Requirement:

IWV-3411, exercise these valves open and closed every three months.

Basis for Relief:

INTRODUCTION

The source of flow to these valves is borated water from the RWST's. the pumps that produce flow through these valves are the High pressure Safety Injection (HPSI), Low Pressure Safety Injection (LPSI) and Containment Spray pumps. They discharge into the Reactor Coolant System (RCS) or containment building spray neaders.

These safety injection system check valves prevent post accident recirculation flow from escaping the normal flow path into the RWST. Plant conditions can be grouped into three test situations with respect the these valves; (1) RCS Pressurized and at normal operating temperature, (2) RCS depressurized and cooled down, and, (3) RCS open during refueling. These conditions are discussed below:

VALVE RELIEF REQUEST NO. 2
(Continued)

Basis for Relief: (Continued)

(1) RCS PRESSURIZED AND AT NORMAL OPERATING TEMPERATURE

These valves cannot be full-stroked using flow during power operation, for the following reasons:

a. The HPSI (shutoff head 1500 psi) and LPSI (shutoff head 200 psi) pumps are unable to overcome RCS system pressure (nominal operating pressure = 2000 psi). There is no full flow recirculation to the RWST from either pump.

As a result, only pump recirculation through the miniflow line is produced using these pumps while the RCS is pressurized. Although this is sufficient for a partial stroke test, flow for a full-stroke test is not available.

b. A quarterly test at power, using the only available flow path, would either inject borated water into the RCS or spray down the containment building or both. If injection were possible during operation, the test would not be performed because the result would be an immediate, uncontrolled and complete reactor shutdown (as a result of the borated water) and/or flooding and resultant degradation of the components and systems located in the containment building (as a result of the containment building spray down).

c. The containment spray pumps cannot be utilized to full-stroke these valves using flow, as the only full flow path during plant operation is through the containment spray header and nozzles.

(2) RCS DEPRESSURIZED AND COOLED DOWN

These valves cannot be full-stroked using flow during cold shutdown for the following reasons:

a. TESTING WITH ALL PUMPS IN A LOOP: Sufficient flow to full-stroke the RWST outlet check valves is not achievable in this condition. Return flow from the HPSI and LPSI pump discharge lines is very limited, consisting of mini-flow recirculation lines and RCS vent lines.

b. TESTING WITH THE CONTAINMENT SPRAY PUMP: The containment Spray (CS) pumps have a 6" recirculation line to the RWST's, but these pumps by themselves cannot develop full-stroke flow for the RWST outlet check valves.

VALVE RELIEF REQUEST NO. 2
(Continued)

Basis for Relief: (Continued)

(2) RCS DEPRESSURIZED AND COOLED DOWN (Continued)

c. TESTING WITH THE LPSI PUMPS: Stroking the RWST outlet check valves with flow from the LPSI pumps is prohibited by the Technical Specifications in Cold Shutdown because the LPSI pumps must be aligned to take suction from the RCS to provide shutdown cooling during this mode of operation. The LPSI pumps cannot, therefore, take a suction through the RWST outlet check valves.

d. TESTING WITH THE HPSI PUMPS: The equivalent of the combined CS, LPSI, and HPSI flowrate cannot be developed with the HPSI pump alone. The HPSI pumps cannot be used to exercise these valves during cold shutdown because of the risk of exceeding cooldown rate limits. The borated water in the RWST is normally at an ambient temperature of ≈ 65° F and the cooled down RCS is nominally at ≈ 135° F.

e. CONCLUSION: The Code required testing of the RWST outlet check valves while the plant is in Cold Shutdown could only be performed after significant redesign of the system, such as the addition of an instrumented full flow test line.

(3) RCS OPEN DURING REFUELING

a. FLOW PATH: The RWST outlet check valves are in the 24" supply line to the suction headers of the HPSI, LPSI and Containment Spray Pumps. To full-stroke the RWST outlet check valves using flow during refueling with the Reactor Vessel head removed, would require that the system achieve a test flow of approximately 6500 gpm (full accident flow). There is one check valve for each of the two trains of pumps. Full flow from the RWST through the check valves of interest is only achieved with all of the pumps in one train running at the same time (one HPSI pump, one LPSI pump and one Spray pump).

A large flow could be achieved in the refueling mode during refueling cavity fill. The HPSI, LPSI and containment Spray pumps could take a suction from the RWST and discharge to the RCS. With the Reactor Pressure Vessel head removed, flow would first fill and then overflow the Reactor Pressure Vessel into the Refueling Cavity.

VALVE RELIEF REQUEST NO. 2
(Continued)

Basis for Relief: (Continued)

(3) RCS OPEN DURING REFUELING (Continued)

b. COOLDOWN LIMITS: The only discharge path that exists for this flow is into the core through the safety injection headers to the cold legs and/or the 6" recirculation line from the Containment Spray pump discharge to the RWST (this 6" line alone has insufficient capacity for the full-stroke of the RWST outlet check valves using flow). The borated water in the RWST is normally at an ambient temperature of ≈ 65° F and the Cooled down RCS is nominally at ≈ 136° F.

Injection of the borated RWST water could result in a cool-down rate in violation of the Technical Specifications (See Figure 3.4-5, RCS Maximum Allowable Cool-Down Rates) for the reactor vessel.

CONCLUSION

From the above discussion, it can be seen that no allowable flow path exists in any plant mode for a full-stroke of the RWST outlet check valves using flow. Testing of these valves could only be accomplished after significant redesign of the system, such as installation of a fully instrumented full flow test loop. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to stroke these valves with the existing system design using flow.

TEST SCHEDULE

Disassemble and inspect both of these valves each refueling outage requires the associated piping to be drained. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of partial disassembly and hand stroking tests required in each refueling.

VALVE RELIEF REQUEST NO. 2
(Continued)

Alternate Testing:

Quarterly, perform a partial stroke test (open) of each valve using system flow. At each refueling outage, test the valve by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling).

During partial disassembly, the valve internals will be visually inspected for worn or corroded parts, and the valve disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage. Following reassembly, the valve will be tested by partial stroking using system flow.

We will actively pursue the use of non-intrusive diagnostic techniques to demonstrate that these valves swing fully open during partial flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Notes: (1) The NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1, has required that a full stroke test using flow be accomplished at refueling intervals for these valves. (See NRC SER, ¶ 4.2.2.3) Relief was denied for partial disassembly and inspection.

(2) This version was submitted by letter, R. M. Rosenblum to NRC, Inservice Test[illegible] Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991.

(3) NRC approval of the current version, above, was documented in letter, James C. Dyer to H. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves, October 2, 1991.

VALVE RELIEF REQUEST NO. 3

System: Safety Injection

Components:

Safety Injection System Check Valves:

24-003-C-724, Outlet Check Valve - Containment Emergency Sump
24-004-C-724, Outlet Check Valve - Containment Emergency Sump

Category: C

Class: 2

Function: These valves open to provide recirculation flow from the containment sump to the suction piping of the HPSI, LPSI and Containment Spray pumps.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

Test Methodology

NORMAL PLANT OPERATION

The only source of water to the inlet of the containment sump outlet check valves is the containment building sump. During normal plant operation this sump is required to be kept dry and the isolation valves shut. This system lineup precludes either full-stroke or partial stroke of these check valves using flow in this mode.

VALVE RELIEF REQUEST NO. 3
(Continued)

Basis for Relief: (Continued)

COLD SHUTDOWN AND REFUELING MODES

In cold shutdown or reactor refueling modes, part stroke exercising of these valves is possible with flow from the containment sump, however, the sump is not maintained at a cleanliness level consistent with the internals of the Safety Injection or Reactor Coolant system piping. The cleanup of the containment sump to a cleanliness level consistent with the internals of the Safety Injection or Reactor Coolant system would be labor intensive.

If part stroke exercising were conducted by filling the sump with water and flow testing these valves, this would potentially contaminate the safety injection systems, the refueling water storage tank, and/or the reactor coolant system with low quality water. This contamination of the systems would cause accelerated corrosion and degradation. Extensive flushing and cleanup following such testing would therefore be required.

CONCLUSION

The Code required testing could only be performed after significant system modifications involving considerable costs. These system modifications would involve additional containment penetrations and long runs of large diameter piping with associated supports and isolation valves. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no practical way to full-stroke these check valves using flow with the existing system design.

TEST SCHEDULE

Disassembly and inspection of these valves each refueling outage requires the associated system piping to be drained. This generates a significant amount of liquid radioactive waste. This generates a significant amount of liquid radioactive waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

VALVE RELIEF REQUEST NO. 3
(Continued)

Alternate Testing:

The valves will be partially disassembled, inspected and manually full stroked at each refueling outage on a rotating basis (one valve per refueling). During partial disassembly, the valve internals will be visually inspected for worn or corroded parts, and the valve disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

A method of partial flow testing will be developed and used following the partial disassembly and prior to returning the valve(s) to service. Additionally, we will actively pursue the use of non-intrusive diagnostic techniques to demonstrate that these valves swing fully open during partial flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Note: (1) NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1, has required that a post-inspection, part-stroke exercise test be performed following the refueling interval partial disassembly and manual stroking.

(2) This version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991.

(3) This revision commits to a *PARTIAL STROKE TEST* of these valves (each valve each refueling). One way this can be accomplished is using a portable pump discharging clean water to the 2" test connection at the valve inlet (See P&ID 40112A, Coord. B-6), isolating the containment sump, RWST, LPSI and Spray pumps from the valve outlet and verifying that there is appropriate flow from a vent or drain downstream of the valve under test.

VALVE RELIEF REQUEST NO. 4

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valve 3-155-C-551 was moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 5

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valve 3-156-C-551 was moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 6

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valves 3-157-A-550 and 3-158-A-550 were moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 7

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valves 4-012-C-358, 4-015-C-358, and 4-016-C-358 were moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 8

System: Safety Injection

Components:

Safety Injection System Check Valves:

10-006-C-675, HPSI Pumps 2P017 and 2P018 Suction Check Valve, and,
10-008-C-675, HPSI Pumps 2P018 and 2P019 Suction Check Valve.

Category C

Class: 2

Function: These valves open to allow a flow of water into the suction piping of the high pressure safety injection pumps.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

This check valve cannot be full stroke exercised during power operations because the high pressure safety injection pumps cannot overcome reactor coolant system pressure. During cold shutdown full stroke exercising this valve could result in a low temperature over-pressurization of the reactor coolant system.

Alternate Testing:

These valves will be full stroke exercised at each refueling, while using the high pressure safety injection pumps to fill the refueling pool canal, and part stroke exercised quarterly during routine inservice testing of the HPSI pumps.

Notes: (1) This version was submitted by letter, SCE to NRC, Docket Nos. 50-361, July 5, 1983

(2) This Relief Request has been approved. See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1 and TER, ¶ 4.2.2.1.

VALVE RELIEF REQUEST NO. 9

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valve 4-017-C-553 was moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 10

This VRR was withdrawn by letter, SCE to NRC, Docket No. 50-361, July 5, 1983. The refueling interval testing justification for Safety Injection system check valves 3-018-A-551, 3-019-A-551, 3-020-A-551 and 3-021-A-551 were moved to the cold shutdown table.

VALVE RELIEF REQUEST NO. 11

System: Safety Injection

Components:

Safety Injection System Check Valves;

12-040-A-551, Safety Injection Tank T008 Outlet Check Valve,
12-041-A-551, Safety Injection Tank T007 Outlet Check Valve,
12-042-A-551, Safety Injection Tank T009 Outlet Check Valve,
and,
12-043-A-551, Safety Injection Tank T010 Outlet Check Valve.

Category: AC

Class: 1

Function: These valves open to allow a flow of water from the Safety Injection Tanks into the Safety Injection Header of each Primary loop.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

DURING NORMAL OPERATION

These check valves cannot be stroked during normal operation without violating the Technical Specification requirements for safety injection tank pressure and level bands. In addition, these valves cannot be full stroked except under actual loss of coolant accident conditions, i.e. no full flow path available.

A. The SIT pressure is ≈ 600 psi and cannot overcome RCS system pressure (nominal operating pressure = 2000 psi). As a result, no flow through these check valves is possible during normal operation.

b. A quarterly test at power using flow (if it were possible) would not be performed because it would inject borated water into the RCS. If injection were possible during operation, the result would be an immediate, uncontrolled and complete reactor shutdown (as a result of the borated water).

VALVE RELIEF REQUEST NO. 11
(Continued)

Basis for Relief: (Continued)

DURING COLD SHUTDOWN OPERATION

During cold shutdown, a full-stroke using flow cannot be accomplished because it could lead to a low-temperature over-pressurization of the RCS due to the lack of expansion volume necessary to accommodate the large quantity of water which must be discharged into the RCS. Further, this flow path is not equipped with the flow rate instrumentation necessary to verify a full-stroke of these check valves.

CONCLUSION

Code required testing can only be performed after significant modifications, such as installation of an instrumented test loop full-stroke testing these valves using flow. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the addition of valves and piping to the system could result in reduced plant reliability. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to full-stroke these valves with the existing system design using flow.

TEST SCHEDULE

Because of its effect on the operability of the associated equipment, performing a test by partial disassembly and hand stroking requires considerable manipulation of plant conditions and imposes significant restrictions on the structure of a refueling outage. Because of the need for draining systems in order to disassemble the valves, performance of these tests generates a significant amount of radioactive liquid waste. Considerable radiation exposure can received by personnel performing the tests. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

Alternate Testing:

Partial stroke test these check valves on a cold shutdown interval.

At refueling intervals, test these valves by partial disassembly and hand stroking. The valve internals shall be visually inspected for worn or corroded parts, and the valve disks shall be manually exercised.

VALVE RELIEF REQUEST NO. 11
(Continued)

Alternate Testing: (Continued)

It shall be verified that the valve is capable of full-stroking and that the internals of the valve are structurally sound. This testing shall be conducted at each refueling outage on a rotating basis. One valve of this group will be tested each successive refueling outage, until the entire group has been tested.

If the disassembled valve is not capable of being full-stroke exercised or there is binding or failure of the valve internals, the remaining valves in this group shall also be disassembled, inspected, and manually full-stroke exercised during the same outage.

A partial flow test shall be performed on the disassembled valve before it is returned to service.

Additionally, we will actively pursue the use of non-intrusive diagnostic techniques to demonstrate that these valves swing fully open during partial flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Notes: (1) This version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(2) This Relief Request has been approved *provided a partial flow test is performed on the disassembled valves before they are returned to service and all valves in this group receive a part-stroke exercise on a cold shutdown interval*. See NRC Generic Letter 89-04, Position 2, and NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1.

VALVE RELIEF REQUEST NO. 12

System: Safety Injection

Components:

Safety Injection System Check Valves;

16-077-C-645, LPSI Pump 2P016 Suction Header Check Valve,
16-084-C-645, LPSI Pump 2P015 Suction Check Valve,
16-199-C-645, LPSI Pump 2P015 Suction Header Check Valve, and,
16-201-C-645, LPSI Pump 2P015 Suction Header Check Valve.

Category: C

Class: 2

Function: These valves open to allow a flow of water from the refueling water storage tank (RWST) into the suction piping of the Low Pressure Safety Injection (LPSI) pumps.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

DURING POWER OPERATION

Full-stroke exercising of the LPSI pump suction check valves with flow requires the passage of the maximum required accident flow rate through the valves. The LPSI suction checks are in the suction lines of the associated LPSI pumps and deliver borated water to these pumps from the RWST's. The pumps in turn discharge to the RCS, Shutdown Cooling heat exchanger and the mini-flow recirculation lines (returning the flow to the RWST's).

These valves cannot be full-stroke exercised using flow during power operation, for the following reasons:

a. The mini-flow recirculation lines cannot provide enough flow through the LPSI pump suction check valves, as the maximum flow achievable through this path is less than required accident flow. Although this is sufficient for a partial stroke test, flow for a full-stroke is not available.

b. During power operation, the Shutdown Cooling System is isolated and cannot be used as a flow path because it must remain isolated due to interlocks controlled by Technical Specification 3.4.5.2.d.

VALVE RELIEF REQUEST NO. 12
(Continued)

Basis for Relief: (Continued)

DURING POWER OPERATION
(Continued)

c. Injecting water into the RCS during power operation is not possible. The Low Pressure Safety Injection (LPSI) pumps (shutoff head = 200 psi) are unable to overcome RCS system pressure (nominal operating pressure = 2000 psi) and therefore there can be no flow into the RCS in this plant mode. If a test at power could be conducted, it would result in injection of borated water into the RCS. The result would be an immediate, uncontrolled and complete reactor shutdown (as a result of the borated water).

COLD SHUTDOWN

The Technical Specifications require that the LPSI pumps remain aligned to provide shutdown cooling at all times while the plant is in Cold Shutdown. The LPSI suction check valves are, accordingly, bypassed and cannot be full-stroke tested using flow. Compliance with the Code requirement to perform quarterly testing could only be accomplished after a major modification of the system design. The improvement of the testing in cold shutdown would not justify the high costs involved.

Alternate Testing:

Quarterly, part-stroke exercise these valves.

A flow path exists during the filling of the refueling canal with the LPSI pumps in plant Mode 6 (refueling). The suction of the LPSI pumps can be aligned to the RWST and the discharge to the LPSI header or shutdown cooling header. Flow could then be directed through the LPSI Suction Header Check Valves at full flow (LPSI Pump Design Flow is 4150 gpm at 400 psid) for a short period of time sufficient to full-stroke these valves with flow. Therefore, the valves will be full stroke exercised using flow at reactor refueling intervals.

Notes: (1) Relief has not been granted to allow partial disassembly and inspection on a sampling basis, See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1. The NRC SER, ¶ 4.2.2.2, granted relief to part-stroke quarterly provided the valves are full-stroked with flow during refueling outages.

VALVE RELIEF REQUEST NO. 12
(Continued)

Notes: (Continued)

(2) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(3) NRC approval of the current version, above, was documented in letter, James E. Dyer to H. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves, October 2, 1991.

VALVE RELIEF REQUEST NO. 13

System: Containment Spray

Components:

Containment Spray System Check Valves:

8-004-C-406, Containment Isolation Stop Check Valve - Spray Header #1,
8-006-C-406, Containment Isolation Stop Check Valve - Spray Header #2.

Category: AC

Class: 2

Function: These valves open to allow a flow of water from the containment spray pump discharge into the containment spray ring headers.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

FULL FLOW TESTING

These valves are in the line leading from the Containment Spray pump discharge to the riser inside the containment building that leads up to the ring headers and spray nozzles. As a consequence full-stroke exercising these valves through this flow path using the containment spray pumps would result in a containment spray down and consequent potential equipment damage as well as create additional liquid radwaste to be removed from the Containment Building sump.

PARTIAL FLOW TESTING

The riser inside the containment building that leads up to the ring headers and spray nozzles is drained each refueling and refilled prior to returning the plant to service. When the riser is being filled with water, the water can be put in the system upstream of each stop check valve. Therefore, this flow through the Spray Header Containment Isolation Stop Check Valves during the filling of the riser would result in a partial stroke of these valves.

VALVE RELIEF REQUEST NO. 13
(Continued)

Basis for Relief: (Continued)

CONCLUSION

A usable flow path does not exist in any pant mode to allow a full-stroke of the Containment Isolation Stop Check Valves for the Spray Headers using flow. The Code required full-stroke testing using flow could only be performed after considerable modification of the system design, such as installation of an instrumented test loop. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the additional valves, piping, supports and penetrations could result in reduced plant reliability. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to stroke these valves with the existing system design using flow.

TEST SCHEDULE

Disassembly and inspection of both of these valves each refueling outage requires additional draining of the associated system piping over and above draining the riser as previously discussed. This generates a significant amount of radioactive liquid waste. In addition, considerable radiation exposure can be received by personnel performing the partial disassembly, hand stroking and inspection. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

Alternate Testing:

At each refueling outage, (1) perform a partial stroke test (open) of each valve using system flow, and, (2) test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling).

During partial disassembly the valve internals shall be visually inspected for worn or corroded parts, and the valve disks will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

VALVE RELIEF REQUEST NO. 13
(Continued)

Alternate Testing: (Continued)

Following reassembly and prior to return to service, the valve will be tested by partial stroking using system flow. Additionally, we will actively pursue the use of non-intrusive diagnostic techniques to demonstrate that these valves swing fully open during partial flow testing. When another method is developed to verify the full-stroke capability of these check valves, this relief request will be revised or withdrawn.

Notes:

(1) The NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1, has required that a post-inspection, part-stroke exercise test be performed following the refueling interval partial disassembly and manual stroking. Also see the NRC SER, ¶ 4.3.1.1.

(2) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(3) The revised Alternate Testing adds partial stroking of the valve following partial disassembly. Air can be used to stroke the valve during the period when the riser is dry. The valve motion is confirmed using a listening device on the valve body. This operation can be conducted at the end of each refueling outage to satisfy the SER requirement for the post-disassembly partial flow test.

VALVE RELIEF REQUEST NO. 14

System: Chemical and Volume Control

Component: Check Valve 2-122-A-554

Category: AC

Class: 2

Function: This valve opens to allow normal charging flow to the reactor coolant system. In addition, this valve is a containment isolation valve in the event of a charging line rupture.

Test Requirement:

IWV-3412, exercise these valves every three months.

Basis for Relief:

Verifying closure of this valve requires a seat leak test (Appendix "J"). Seat leak testing of this valve requires isolating normal charging and draining a portion of the charging line. This would violate Technical Specification 3.1.2.2 which requires two boration flow paths

Alternate Testing:

This valve will be verified closed during refueling outages while performing Appendix "J" testing. Also, this valve will be exercised open quarterly during routine inservice testing of the charging pumps.

Notes: (1) The NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1, approved this relief request. See the NRC SER, ¶ 4.4.1.1.

(2) The current version was submitted by letter, SCE to NRC, Docket No. 50-361, July 5, 1983.

VALVE RELIEF REQUEST NO. 15

This VRR was withdrawn by letter, SCE to NRC, Docket Nos. 50-361 and 50-362, Inservice Testing Program for Pumps and Valves, TAC Nos. 55120/1, May 18, 1990. Testing of HVAC system valves 2(3)HV7800, 2(3)HV7801, 2(3)HV7802, 2(3)HV7803, 2(3)HV7805, 2(3)HV7806, 2(3)HV7810 and 2(3)HV7811 "only if a containment purge is not in progress", was not acceptable to the NRC and is an unnecessary restriction on the testing. The purge can be secured if conflicts arise during IST. This NRC recommendation to withdraw was discussed in a telephone conversation with the NRC on December 11, 1989.

VALVE RELIEF REQUEST NO. 16

System: All Systems

Components: All Power Operated Valves

Category: A and B

Class: 1, 2 and 3

Function: N/A

Test Requirement:

IWV-3413(c): If an increase in stroke time of 25 % or more from the previous test for valves with stroke times greater than 10 sec. or 50 % or more for valves with stroke times less than or equal to 10 sec. is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed.

Basis for Relief:

It has been observed through surveillance testing and corrective action that the repeatability of valve stroke times for valves with short stroke times is sporadic and independent of degradation.

For valves with rapid stroke times compliance with the stroke time trending and corrective action requirements of the Code is impractical because much of the difference in stroke times from test to test comes from inconsistencies in the operator or timing device. Therefore, compliance with the Code requirements would often result in costly maintenance when no degradation has actually occurred. An alternative acceptable to the NRC staff regarding stroke time measurements for rapid-acting valves is explained in detail in Generic Letter 89-04, Attachment 1, Position 6.

Alternate Testing:

Valves with stroke times of 2 seconds or less are referred to by the NRC as "rapid-acting valves." An increase in stroke time of 50 % or more for a rapid-acting valve (stroke time of 2 seconds or less) shall not result in a test frequency increase to once each month. However, if a valve stroke time does exceed its maximum stroke time value, it shall be declared inoperable.

VALVE RELIEF REQUEST NO. 16
(Continued)

Notes:

(1) This Relief Request has been approved, *provided the 2 second definition of "Rapid-Acting Valve" is used.* See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1 and attached TER ¶ 4.1.2.1.

(2) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 1, 1991

VALVE RELIEF REQUEST NO. 17

This VRR was withdrawn by letter, SCE to NRC, Docket Nos. 50-361 and 50-362, Inservice Testing Program for Pumps and Valves, TAC Nos. 55120/1, May 18, 1990. Testing of the vacuum breaker on the spray additive tanks (Valve 2-159-C-611) is no longer needed since this system has been decommissioned and is not longer in service.

VALVE RELIEF REQUEST NO. 18

System: Main Steam

Components:

Main Steam System Check Valves;

4-003-D-620, Steam Supply - S/G E088 to AFP Turbine K007 Check Valve, and,
4-005-D-620, Steam Supply - S/G E089 to AFP Turbine K007 Check Valve.

Category: C

Class: 3

Function:

These valves are in the main steam supply to the turbine-driven auxiliary feedwater pump. In the event of a main steam line break, these valves provide reverse flow check to isolate the affected steam generator.

Test Requirement: IWV-3411, exercise the valves every three months.

Basis for Relief:

The AFP steam supply check valves are in the steam supply lines from the main steam system to the inlet of the steam driven AFP turbine trip and throttle valves.

DURING PLANT OPERATION

During normal plant operation, main steam pressure tends to open these valves. No pressure source exists to reverse this pressure in the steam line where these valves are located and allow detection of valve closure or valve leakage. Consequently, with the present system design, verifying the closure of the AFP Steam Supply check valves by leak testing or with reverse flow, while the plant is operating, is not practical. Although a temporary external pressure source could be hooked up to the down stream piping, and apply reverse pressure to these check valves, the required valve lineup would cause the associated auxiliary feedwater pump to be inoperable during the test.

VALVE RELIEF REQUEST NO. 18
(Continued)

Basis for Relief: (Continued)

DURING COLD SHUTDOWN OR REFUELING MODES

Regardless of plant mode, there is no positive means of verifying that the valve disc travels to the closed position. System connections, such as vents and drains (and appropriate line isolation valves) are not present in the system to allow verification that a pressure differential exists across the AFP Steam Supply check valves when they are in the closed position.

CONCLUSION

Testing of these valves could only be accomplished after significant redesign of the system, such as installation of additional isolation valves and appropriate vents and drains in the high pressure steam piping. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the addition of valves, supports and necessary piping modifications could result in reduced plant reliability. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow. In this case, there is no way to test these check valves closed with the existing system design using reverse flow or pressure.

TEST SCHEDULE

Disassembly and inspection of both of these valves each refueling outage requires the associated system piping to be opened up. This is a significant effort requiring substantial manpower and refueling outage time. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

Alternate Testing:

Quarterly, perform a partial stroke test (open) of each valve using system flow. At each refueling outage, test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling).

VALVE RELIEF REQUEST NO. 18
(Continued)

Alternate Testing: (Continued)

During partial disassembly the valve internals will be visually inspected for worn or corroded parts, and the valve disks shall be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full-stroke exercised during the same outage. Following reassembly and prior to return to service, the valve will be tested by partial stroking using system flow.

We are actively pursuing the use of non-intrusive diagnostic techniques such as acoustics or radiography to demonstrate that these valves close when subjected to reverse flow conditions. If another method is developed to verify the reverse flow closure capability of these check valves, this relief request will be revised or withdrawn.

Notes:

(1) This Relief Request has been approved *provided we perform a partial stroke test using flow following reassembly of the hand stroked valve and prior to returning it to operable status*, See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1 (and ¶ 4.5.1.1), and NRC Generic Letter 89-04, Position 2.

(2) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(3) NRC approval of the current version, above, was documented in letter, James E. Dyer to H. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves, October 2, 1991.

VALVE RELIEF REQUEST NO. 19

This Relief Request is not necessary, See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1. Also see NRC SER, ¶ 4.7.1.1. This VRR was withdrawn by The current version was withdrawn by letter, SCE to NRC, Docket No. 50-361 and 50-362, Status of NRC Safety Evaluation Report, Appendix C Items for the Inservice Testing Program for Pumps and Valves, April 12, 1991. An official withdrawn version was transmitted by letter, R.M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves, TAC No.s 55120/1, June 18, 1991. Testing of HVAC system valves HV9948, HV9950, HV9949 and HV9951 at cold shutdown intervals was explained in the cold shutdown table.

VALVE RELIEF REQUEST NO. 20

System: Condensate and Feedwater

Components:

Condensate and Feedwater System Check Valves;

20-036-C-609, Main Feed Check at Steam Generator E089, and,
20-129-C-609, Main Feed Check at Steam Generator E088.

Category: C

Class: 2

Function:

These check valves are in the main feedwater supply to the steam generators. During a loss of feedwater accident, these check valves will close isolating the main feedwater piping from auxiliary feedwater flow.

Test Requirement:

IWV-3411, exercise these valves every three months.

Basis for Relief:

INTRODUCTION

The main feed check valves at the Steam Generators prevent reverse flow from exiting the steam generators in the event of a feed line break between the steam generator feedwater inlet nozzle and the first power operated isolation valve inside containment.

DURING POWER OPERATION

These check valves pass full feedwater flow into each steam generator during power operation. the check valves remain fully open and cannot be closed without disrupting the feedwater flow into the associated steam generator. If the Check valve were closed for test, the resulting reduction of feedwater flow would cause control of the steam generator level to be lost, resulting in a plant trip.

VALVE RELIEF REQUEST NO. 20
(Continued)

Basis for Relief: (Continued)

DURING COLD SHUTDOWN AND REFUELING

Flow is not present during cold shutdown, however, there are no test connections installed in this system to enable leak testing of these valves to verify closure. No instrumentation is installed in this system which could enable closure verification of these valves by measuring reverse differential pressure across the valves nor are these valves equipped with position indication.

CONCLUSION

Compliance with the Code requirements could only be achieved after a significant redesign of the system. The high costs of the necessary design changes involved would not be justified by the improvement of the valve testing. Further, the addition of valves, supports and necessary piping modifications could result in reduced plant reliability. NRC Generic Letter 89-04, Attachment 1, Position 2, identifies partial disassembly and inspection as an acceptable alternative for stroking a valve when it is impractical to use flow.

TEST SCHEDULE

Because of its effect on the operability of the associated equipment, performing these tests requires considerable manipulation of plant conditions and imposes significant restrictions on the structure of a refueling outage. As a consequence, there is a clear advantage in reducing the number of these tests required in each refueling.

Alternate Testing:

At cold shutdown intervals, perform a full stroke test (open) of each valve using system flow.

At each refueling outage, test the valves by partial disassembly, inspection and manual stroking on a rotating basis (one valve per refueling).

During partial disassembly the valve internals shall be visually inspected for worn or corroded parts, and the valve disk will be manually exercised. If it is found that the full stroke capability of the disassembled valve is in question, the other valve will be similarly disassembled and inspected and manually full stroked during the same outage.

VALVE RELIEF REQUEST NO. 20
(Continued)

Alternate Testing: (Continued)

Following reassembly and prior to return to service, the valve will be tested by partial stroking using system flow.

We are actively pursuing the use of non-intrusive diagnostic techniques such as acoustics or radiography to demonstrate that these valves close when subjected to reverse flow conditions. If another method is developed to verify the reverse flow closure capability of these check valves, this relief request will be revised or withdrawn.

Notes: (1) This Relief Request has been approved, See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1 and NRC SER, ¶ 4.6.1. *Relief was granted provided we part-stroke exercise the valve to the open position with flow after reassembly.*

(2) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(3) NRC approval of the current version, above, was documented in letter, James E. Dyer to H. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves, October 2, 1991.

VALVE RELIEF REQUEST NO. 21

This Relief Request is no longer necessary and this version was withdrawn by letter, SCE to NRC, Docket Nos. 50-361 and 50-362, August 21, 1987. HV-8204 and HV-9949 will be exercised as required by the code. Valve Test Interval Justification moved to Cold Shutdown Tables (Attachments 3 and 5)

VALVE RELIEF REQUEST NO. 22

This Relief Request is no longer necessary and this version was withdrawn by letter, SCE to NRC, Docket Nos. 50-361 and 50-362, April 4, 1985. Containment Spray valves 2-054-C-611 and 2-069-C-611 will be exercised open quarterly.

VE RELIEF REQUEST NO. 23

ed Valves

if an increase in stroke time of 25 % or more from
est for valves with stroke times greater than 10
more for valves with stroke times less than or
is observed, test frequency shall be increased to
until corrective action is taken, at which time
t frequency shall be resumed.

the previous test often causes a needless and
try into the increased frequency of testing. A
sult of low value can often occur immediately
tenance in which, for example, the stem is lubri-
test after a normal 92 day interval, can result
ne normal valve stroke time. If the difference
o times is more than that allowed <25 % (or < 50
ll be put in the increased frequency of testing
ective action. This happens frequently and causes
subject of corrective action even when they are
erly and normally.

e or average value of valve stroke time for
st data versus the previous stroke time is a
native to Code requirements. While still being in
the Code, a continual increase in valve stroke
period could result in significant valve degrada-
test frequency being increased or corrective
en. This is because the test data is compared
ious stroke time and each incremental increase in
d be less than that specified in Paragraph
mparing test results to a reasonably derived
n average stroke time, insures that such an
not occur, while at the same time eliminating
ective action.

lue of stroke time used for comparison of test
stablished when the valve is known to be in good
ion.

VALVE RELIEF REQUEST NO. 23
(Continued)

Alternate Testing:

Instead of the previous stroke time, use a **REFERENCE STROKE TIME**.

If an increase in stroke time of 25 % or more from the **REFERENCE STROKE TIME** for valves with stroke times greater than 10 sec. (or 50 % or more for valves with stroke times less than or equal to 10 sec.) is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed.

REFERENCE STROKE TIME is the average stroke time since the last maintenance that could have affected stroke time (or last three strokes, whichever is greater). The **REFERENCE STROKE TIME** value if used for comparison of test data shall be established when the valve is known to be in good operating condition.

Notes: (1) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991.

(2) This Relief Request has been approved, NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1. *This relief has been granted provided reference values of stroke time are established when the valves are known to be in good operating condition.* See NRC SER, ¶ 4.1.3.1.

VALVE RELIEF REQUEST NO. 24

System: All Systems

Components: All Valves Tested at Cold Shutdown Intervals

Category: All

Class: 1, 2 and 3

Function: N. A.

Te Requirement:

Code section IWV-3412(a) requires that valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns. Full stroke exercising during cold shutdowns for all valves not full-stroke exercised during plant operations shall be on a frequency determined by the intervals between shutdowns as follows: for intervals of 3 months or longer, exercise during each shutdown; for intervals of less than 3 months, full stroke exercise is not required unless 3 months have passed since last shutdown exercise.

Basis for Relief:

If a plant cold shutdown is of such short duration that all of the cold shutdown testing cannot be completed as required, then the plant startup can be delayed for this testing. This has not been required of other plants with approved Inservice Testing Programs.

Requiring completion of all required valve testing prior to plant restart would be a hardship because it could result in costly extensions of cold shutdowns.

Alternate Testing:

Valve testing at cold shutdown shall commence not later than 48 hours after cold shutdown and continue until required testing is completed or plant is ready to return to service. Completion of all required valve testing is not a requisite to plant startup. Valve testing which is not completed during a cold shutdown will be performed during subsequent cold shutdowns starting from the last test performed at the previous cold shutdown, to meet the Code specified testing requirements. No valve need be tested more often that once every 92 days. For planned cold shutdowns where ample time is available exception to the 48 hours may be taken, if testing of all the "Cold Shutdown" valves identified in the IST Program will be completed before return to power operation.

VALVE RELIEF REQUEST NO. 24
(Continued)

Notes: (1) The current version was submitted by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991.

(2) This Relief Request has been approved. See NRC Safety Evaluation Report transmitted by letter, L. E. Kokajko (NRC) to H. B. Ray (SCE) and G. D. Cotton (SDG&E), Safety Evaluation Report of the Inservice Testing (IST) Program for Pumps and Valves, September 24, 1990, Table 1 and see SER, ¶ 4.1.1.1.

VALVE RELIEF REQUEST NO. 25

System: Main Steam

Components: Atmospheric Dump Valves (ADV's)
2(3)HV8419
2(3)HV8421

Category: B

Class: 2

Function:

Close on Main Steam Isolation Signal (MSIS). Time to close is 9.6 sec. Open remotely and manually. There is no response time associated with opening the ADV in any accident analysis (except for 30 min. operator response time).

Test Requirement:

Full stroke exercise quarterly in accordance with the ASME Code, Section XI, IWV-3411.

Basis for Relief:

NORMAL SYSTEM LINEUP

The ADV's are rarely opened during power operation and are only used during plant heat up and cool downs when the condenser is not available. Therefore, the valves are normally in their MSIS actuated position, and there is generally no need to perform a full closed stroke test of the ADV's.

QUARTERLY FULL STROKE

Fully opening an ADV without isolation of the steam flow path at power risks plant upset and trip as this allows a large steam release, approximately 5 % of 3410 MW thermal, and a resultant pressure transient when the ADV is tripped closed. The pressure transient could result in RCS temperature excursions that could cause an Engineered Safety Feature (ESF) initiation with the associated reactor trip.

There is a maintenance block valve upstream of the ADV. This valve could be closed to block steam flow to allow the ADV to be fully opened for test without releasing steam. However, an isolated ADV is unavailable to perform its function with the block valve closed necessitating entry into the action requirements of Technical Specification 3.7.1.6 and aggravating the unavailability of the ADV's from a plant reliability point of view.

VALVE RELIEF REQUEST NO. 25
(Continued)

Basis for Relief: (Continued)

PARTIAL STROKE TESTING WITH PRESSURE APPLIED

A partial stroke of the ADV can be performed, while the ADV is experiencing full system pressure, by opening the valve to approximately 25 %. The ADV's are designed with integral pilot valves that assist in opening the ADV when it is under pressure. The pilot valve equalizes pressure across the ADV (partially) during the open stroke.

Partial stroke exercising with main steam pressure applied followed by closing the ADV in a similar manner as would a MSIS actuation, demonstrates the ADV and its pilot valve's ability to open and close under actual operating conditions.

CONCLUSION

This proposed alternative testing method would be analogous to actual design conditions for ADV operation and can be performed with minimal impact to plant operations. The pilot valve stroke length is the first 5 % of the stem travel. This fully exercises the pilot valve and piston ring, and partially exercises the main plug.

The pilot valve serves no function when the ADV is not under system pressure. The depressurized stroke test is an artificiality that does not demonstrate the ability of the ADV to function under design conditions.

Alternate Testing:

Perform a partial stroke test of the ADV under actual operating conditions (without isolation of the main steam pressure) on a quarterly basis.

Full stroke the valve on a cold shutdown basis.

Notes: (1) The current version was submitted as a new VRR by letter, R. M. Rosenblum to NRC, Inservice Testing Program for Pumps and Valves TAC Nos. 55120/1, July 31, 1991

(3) NRC approval of the current version, above, was documented in letter, James E. Dyer to H. B. Ray and G. D. Cotton, Safety Evaluation of Licensee Responses to Staff's Technical Evaluation Report Items and Revised Relief Requests to the IST Program for Pumps and Valves, October 2, 1991.

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS

See Note 3 in Attachment 1 to this procedure. For valves referencing note 3 in Attachments 2 and 4, the maximum stroke times are protected values. These upper limits may not be increased without a revision to the Final Safety Analysis and/or the Technical Specifications. This is discussed in Reference 2.3.4. Stroke times in Attachments 2 and 4 without note 3 are not protected and may be changed with the approval of the Cognizant Supervisor (these maximum stroke times are assigned pursuant to Reference 2.4.2, and Reference 2.4.5, Paragraph IWV-3413). To comply with Reference 2.4.2, many valves have IST Program stroke time limits shorter than the required times of the accident analysis. They are as follows:

Valve	Safety Analysis Stroke Limit	IST Stroke Limit
2(3)HV4712	BTC 40	36
	BTO 41.5	36
2(3)HV4713	BTC 40	36
	BTO 41.5	36
2(3)HV4714	BTC 40	10
	BTO 41.5	10
2(3)HV4715	BTC 33.5	10
	BTO 35	10
2(3)HV4730	BTC 33.5	10
	BTO 35	10
2(3)HV4731	BTC 40	10
	BTO 41.5	10
2(3)HV9205	40	4
2(3)TV9267	40	13
2(3)HV9900	40	14
2(3)HV9920	40	12
2(3)HV9921	40	26
2(3)HV9971	40	13

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve	Safety Analysis Stroke Limit	IST Stroke Limit
2(3)HV6211	40	15
2(3)HV6216	40	15
2(3)HV6223	40	15
2(3)HV6236	40	15
2(3)HV6500	12	8
2(3)HV6501	12	8
2(3)HV5686	40	33
2(3)HV7258	40	31
2(3)HV7259	40	5
2(3)HV7512	40	17
2(3)HV7513	40	7
2(3)HV5434	40	4
2(3)HV5437	40	2
2(3)HV0508	40	33
2(3)HV0509	40	4
2(3)HV0510	40	24
2(3)HV0511	40	5
2(3)HV0512	40	31
2(3)HV0513	40	5
2(3)HV0514	40	31
2(3)HV0515	40	2

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve	Safety Analysis Stroke Limit	IST Stroke Limit
2(3)HV0516	40	25
2(3)HV0517	40	29
2(3)HV7911	40	7
2(3)HV9217	40	15
2(3)HV9218	40	5
2(3)HV5388	40	2
2(3)HV9306	40	30
2(3)HV9307	40	30
2(3)HV9322	30	16
2(3)HV9325	30	16
2(3)HV9328	30	16
2(3)HV9331	30	16
2(3)HV9334	40	13
2(3)HV9347	40	32
2(3)HV9348	40	32
2(3)HV4053	20	9
2(3)HV4054	20	9
2(3)HV4057	20	5
2(3)HV4058	20	5
2(3)HV8419 BTC	20	15

STROKE TIME ACCEPTANCE CRITERIA FOR VALVES REQUIRED TO STROKE AT OTHER THAN THEIR SAFETY ANALYSIS LIMITS
(Continued)

Valve	Safety Analysis Stroke Limit	IST Stroke Limit
2(3)HV8421 BTC	20	15
2(3)HV5803	40	18
2(3)HV5804	40	5

These differing stroke times reflect the methodology used to establish stroke times for the power operated valves in Units 2 and 3. It also reflects the absolute limits on stroke times versus the IST Program limits developed in accordance with NRC Generic Letter 89-04.